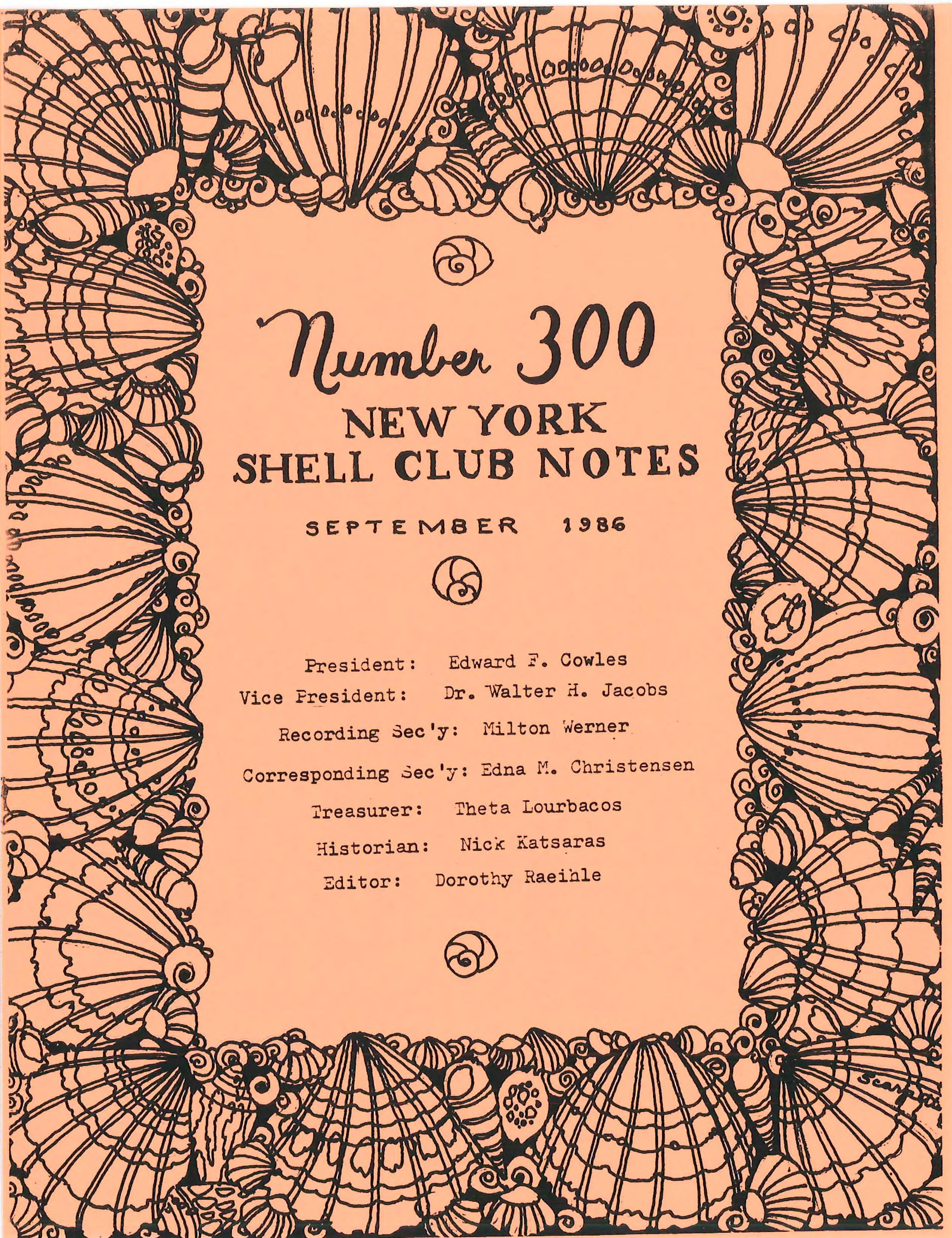


Number 300

NEW YORK SHELL CLUB NOTES

SEPTEMBER 1986

President: Edward F. Cowles
Vice President: Dr. Walter H. Jacobs
Recording Sec'y: Milton Werner
Corresponding Sec'y: Edna M. Christensen
Treasurer: Theta Lourbacos
Historian: Nick Katsaras
Editor: Dorothy Raeihle

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

OFFICERS, 1986-7

President: Edward F. Cowles, 12 Hillcrest Ave., New Rochelle,
N.Y. 10801; 914-636-3136

Vice President: Dr. Walter H. Jacobs, 585 West End Ave., New York,
N.Y. 10024: 212-362-0223

Recording Sec'y: Milton Werner, 70 Richmond St., Brooklyn,
N.Y. 11208: 718-277-2076

Corresponding Sec'y: Edna Christensen, 68-45 Harrow St., Forest Hills,
N.Y. 11375: 718-261-7089

Treasurer: Theta Lourbacos, 66 West 94 St., #20C, New York,
N.Y. 10025: 212-866-1298

Directors: Fred Cannon, Mary Anne Bastek, Walter Sage, Nancy McTiernan

Historian: Nick Katsaras, 27 N. Dean St., Englewood, N.J. 07631

Editor: Dorothy Raeihle, 211 Milligan Rd., West Babylon,
N.Y. 11704: 516-669-3478

Librarian: Carol Lindsay, 69 Balsam Rd., Wayne, N.J. 07470
201-839-0074

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy. Items and articles for publication in the NOTES should be sent to the Editor.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB NOTES No. 300 September 1986

ADDENDUM

SCHEDULE OF MEETING DATES FOR 1986-1987

The second Sunday of each month, September through June in Room 419, American Museum of Natural History, at 2 PM, except for the April meeting which is a combined auction/social. The Museum is at Central Park West and 79th Street, New York City.

September 14, 1986
October 12, 1986
November 9, 1986
December 14, 1986
January 11, 1987
February 8, 1987
March 8, 1987
April 12, 1987
May 10, 1987
June 14, 1987

Our meeting room will be open at 1:30 PM on meeting days. This will provide time before the formal meeting to get a problem shell identified, suggest programs or activities for N Y. Shell Club, glance at recent publications, or just visit with new and old friends.

COMING ATTRACTIONS - Among programs being planned for future meetings;

"Local Shelling on Long Island", Richard Kelly

"Shells of West Mexico"

Dr. Neil Landman, AMNH nautilus expert, recently back from a South Pacific field trip.

Naomi Stern, shell-collecting scuba diver

A visit to Fred Cannon's home and shell collection

And, of course, our annual social/auction in April.

N.Y. SHELL CLUB LIBRARY - We hope to complete arrangements soon for New York area members to again borrow books from the Club's Library. Those who now have books or publications belonging to N.Y. Shell Club are urgently requested to return them at the next meeting so the inventory can be finished. Then a list will be provided so that members may request the book they would like to borrow.

SHELL OF THE MONTH - A species will be designated each month and members will have the opportunity to exhibit a selection from their own collection of that species at our monthly meeting. It could be chosen for its beauty, rarity, value, origin, unusual color, etc.

Species for October - Lambis

Species for November - Pectin

Last, but not least, we will continue our (very popular) shell door prizes at each meeting.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

NEXT MEETING: SEPTEMBER 14, 1986, at 2:00 p.m.
PROGRAM: THE SECRET OF THE MYTILUS, Dr. Walter Jacobs
WHAT SHELL IS THAT? Gary Rosenberg

MEETING: SUNDAY, OCTOBER 12, 1986, at 2:00 p.m.
PROGRAM: LAND SHELLS OF GREECE, Richard Goldberg

MEETING: SUNDAY, NOVEMBER 9, 1986, at 2:00 p.m.
PROGRAM: TRAVELING AND SHELLING IN ALASKA, Theta Lourbacos

All of the programs have slide presentations and shell exhibits. The meeting room will be open at 1:30 p.m. (See ADDENDUM)

CONTENTS

		Page
Early NYSC NOTES	Dorothy Raeihle	2
NEW YORK SHELL CLUB NOTES No. 1	Morris K. Jacobson (Reprints courtesy of Aurèle LaRocque.)	3
First Club Field Trip		4
First Roster (Charter Members)		6
Highlights of the June Meeting	Milton Werner	7
Obituary: G. Barton Barlow	Dorothy Raeihle	8
Oyster Watch (at Nature Center)	NY Daily News	8
Oyster Festival September 27-28	Hanrahan in Daily News	8
American Malacologists Expands etc.	News Release, R.T.A.	9
AMU-WSM 1986	Walter E. Sage	9
COA 1986	Walter E. Sage	9
Controls Export of Australian Shells	Australian Shell News	10
Sinai Revisited	Singer, Fainzilber & Gat	11
Of Helix aspersa	Raeihle (ed.); Ramirez	14
Shell Desk Diary, information on	Shell Service Bureau	15
REVIEWS:		
Seashells of Brazil, by Rios	R. Tucker Abbott	16
Seashell Treasures..Caribbean, Sutty	Walter E. Sage	16
Moluscos..Ria de Vigo, by Mosquera	Walter E. Sage	17
Mollusca..Bay of Algeciras, by J. J. Van Aartson et al.	Walter E. Sage	18
Seashells of Western Australia by Wells and Bryce	R. Tucker Abbott	18
Dangerous Marine Animals..Pacific Coast, by Christina Parsons	Sea Technology	18
Easy to Say Crepidula, by Cate & Raskin.	R. T. Abbott	19
Malacology Data Net (Announcement)	Arthur H. Clarke	19
Molluscan Mascot	N.Y. Times	19
Reader's Forum (Editorships)	R. Tucker Abbott	20
Miscellaneous Notes and News		20
Social Progress (Art)	N.Y. Times	21

EARLY NYSC NOTES

These NEW YORK SHELL CLUB NOTES were born of Karl Jacobson's enthusiasm. At first he was sole editor as well as reporter, commentator, contributing author, and printer. He was to remain a pillar of this publication for the rest of his life. As we reach issue No. 300, let us take a look at some of the earliest issues:

NOTES No. 1 (undated) appeared in December 1949 with a report of the Club's first field trip and the list of charter members making up the first roster (See following pages.).

NOTES No. 2, dated January 1950, carries Mr. Anthony D'Attilio's "Some Notes on the Great Clavert*(sic) Collection" (Karl always complained that his typewriter couldn't spell.). The lead article in No. 3, dated September 1950, reports the field trip to Annsville Cut, near Peekskill, New York, and that membership reached 37 at the October meeting. No. 4, March 1951, includes "Hunting Land Shells in the West" by Frank Henri Hausman and "A Simplified Synopsis of the Genus Murex ... " by Anthony D'Attilio and Morris K. Jacobson, the earliest article we have found associating Tony with the study of the family Muricidae.

No. 5 appeared in October 1951 but the next issue, in March 1952, was numbered "7" by mistake — and we find ourselves having to explain the case of the missing "6" even to this day.

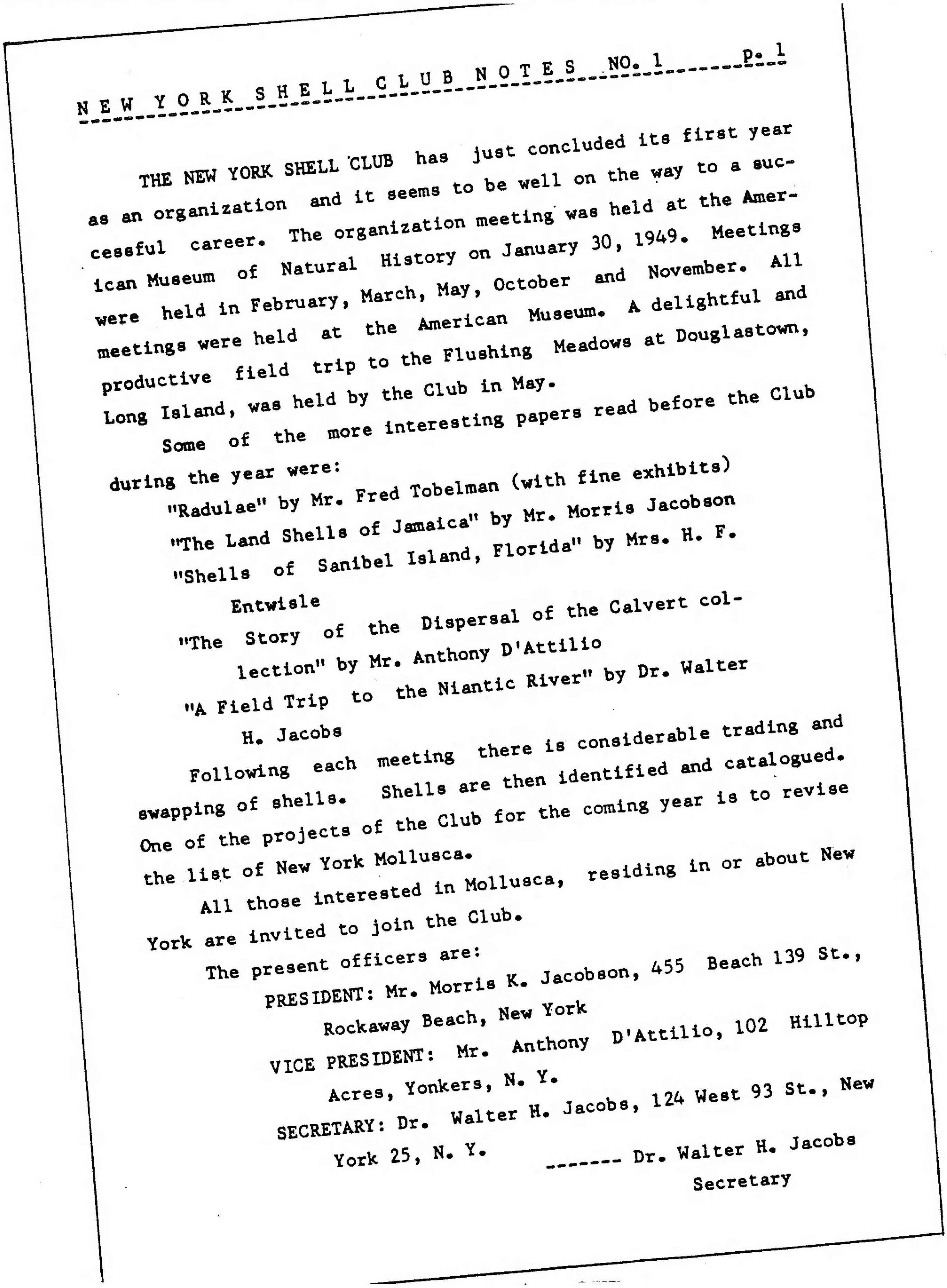
In No. 8, July 1954, there is a brief but highly complimentary review of the new book, AMERICAN SEASHELLS, by R. Tucker Abbott. Karl notes some of the changes made in the names of our local genera: "Lunatia triseriata and Lunatia heros instead of Polinices etc., Anadara ovalis instead of Arca pexata Say, Aequipecten irradians instead of Pecten ir., Mercenaria mercenaria instead of Venus m."

No. 9, November 1954, announces that publication could now be expected on a regular basis, as our members Dr. and Mrs. Julius Wisoff, with unexampled generosity, have provided the Club with a splendid mimeo machine. One of the articles in No. 9 is a report by Harold S. Feinberg, "The Mollusca of Van Cortlandt Park," wherein he lists 23 species of 20 genera and 13 families, and describes the area. He notes that there is still some wildlife in the park — "a pair of foxes, raccoons and muskrats and an occasional deer ... grey squirrels, chipmunks, an occasional flying squirrel, weasel or woodchuck."

Not many copies were printed of these early numbers, and as membership grew it was not very long before the stacks were diminished. Scarce originals were lent to interested individuals and institutions for them to copy for their files. This proved a fortunate practice, as after 30 and more years some of the issues are practically illegible because of deteriorating paper stock. It is through the courtesy of Dr. Aurèle LaRocque that we are able to give you in the following pages a copy of NOTES No. 1. Dr. LaRocque realized the historical interest and, fifteen or more years ago, had made and furnished us with a good number of copies of this first issue — as a gift. We are also indebted to Dr. LaRocque for the file in our New York Shell Club Library of "Sterkiana," a professional journal, which he sent as an exchange for our NOTES.

*Calvert

Dorothy Raeihle
Editor, NYSC NOTES



NEW YORK SHELL CLUB NOTES NO. 1 p. 1

THE NEW YORK SHELL CLUB has just concluded its first year as an organization and it seems to be well on the way to a successful career. The organization meeting was held at the American Museum of Natural History on January 30, 1949. Meetings were held in February, March, May, October and November. All meetings were held at the American Museum. A delightful and productive field trip to the Flushing Meadows at Douglastown, Long Island, was held by the Club in May.

Some of the more interesting papers read before the Club during the year were:

"Radulae" by Mr. Fred Tobelman (with fine exhibits)
"The Land Shells of Jamaica" by Mr. Morris Jacobson
"Shells of Sanibel Island, Florida" by Mrs. H. F. Entwisle
"The Story of the Dispersal of the Calvert collection" by Mr. Anthony D'Attilio
"A Field Trip to the Niantic River" by Dr. Walter H. Jacobs

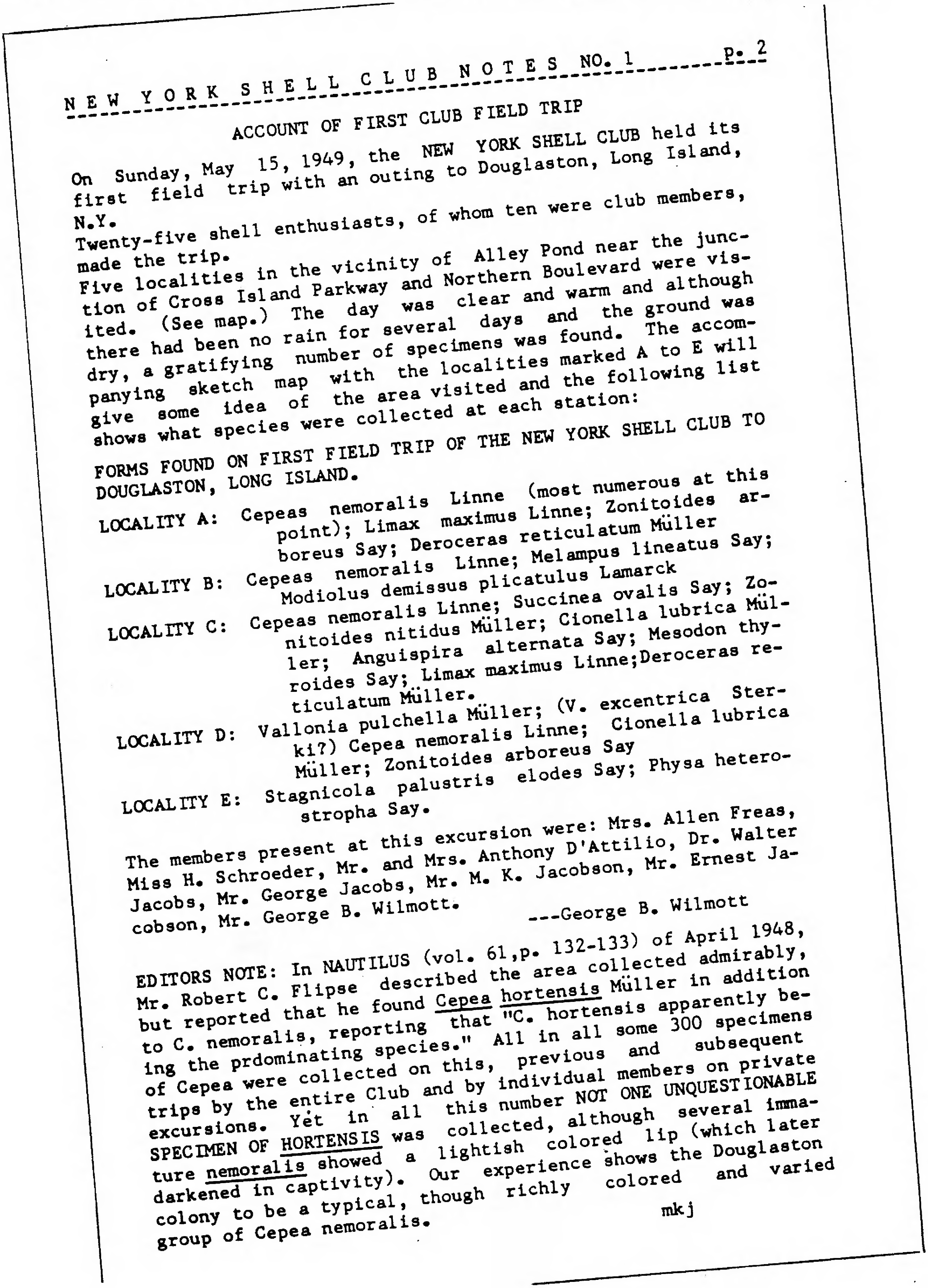
Following each meeting there is considerable trading and swapping of shells. Shells are then identified and catalogued. One of the projects of the Club for the coming year is to revise the list of New York Mollusca.

All those interested in Mollusca, residing in or about New York are invited to join the Club.

The present officers are:

PRESIDENT: Mr. Morris K. Jacobson, 455 Beach 139 St., Rockaway Beach, New York
VICE PRESIDENT: Mr. Anthony D'Attilio, 102 Hilltop Acres, Yonkers, N. Y.
SECRETARY: Dr. Walter H. Jacobs, 124 West 93 St., New York 25, N. Y.

------- Dr. Walter H. Jacobs
Secretary



ACCOUNT OF FIRST CLUB FIELD TRIP

On Sunday, May 15, 1949, the NEW YORK SHELL CLUB held its first field trip with an outing to Douglaston, Long Island, N.Y.

Twenty-five shell enthusiasts, of whom ten were club members, made the trip.

Five localities in the vicinity of Alley Pond near the junction of Cross Island Parkway and Northern Boulevard were visited. (See map.) The day was clear and warm and although there had been no rain for several days and the ground was dry, a gratifying number of specimens was found. The accompanying sketch map with the localities marked A to E will give some idea of the area visited and the following list shows what species were collected at each station:

FORMS FOUND ON FIRST FIELD TRIP OF THE NEW YORK SHELL CLUB TO DOUGLASTON, LONG ISLAND.

LOCALITY A: Cepeas nemoralis Linne (most numerous at this point); Limax maximus Linne; Zonitoides arboreus Say; Deroceras reticulatum Müller

LOCALITY B: Cepeas nemoralis Linne; Melampus lineatus Say; Modiolus demissus plicatulus Lamarck

LOCALITY C: Cepeas nemoralis Linne; Succinea ovalis Say; Zonitoides nitidus Müller; Cionella lubrica Müller; Anguispira alternata Say; Mesodon thyroides Say; Limax maximus Linne;Deroceras reticulatum Müller.

LOCALITY D: Vallonia pulchella Müller; (V. excentrica Sterki?) Cepea nemoralis Linne; Cionella lubrica Müller; Zonitoides arboreus Say

LOCALITY E: Stagnicola palustris elodes Say; Physa heterostropha Say.

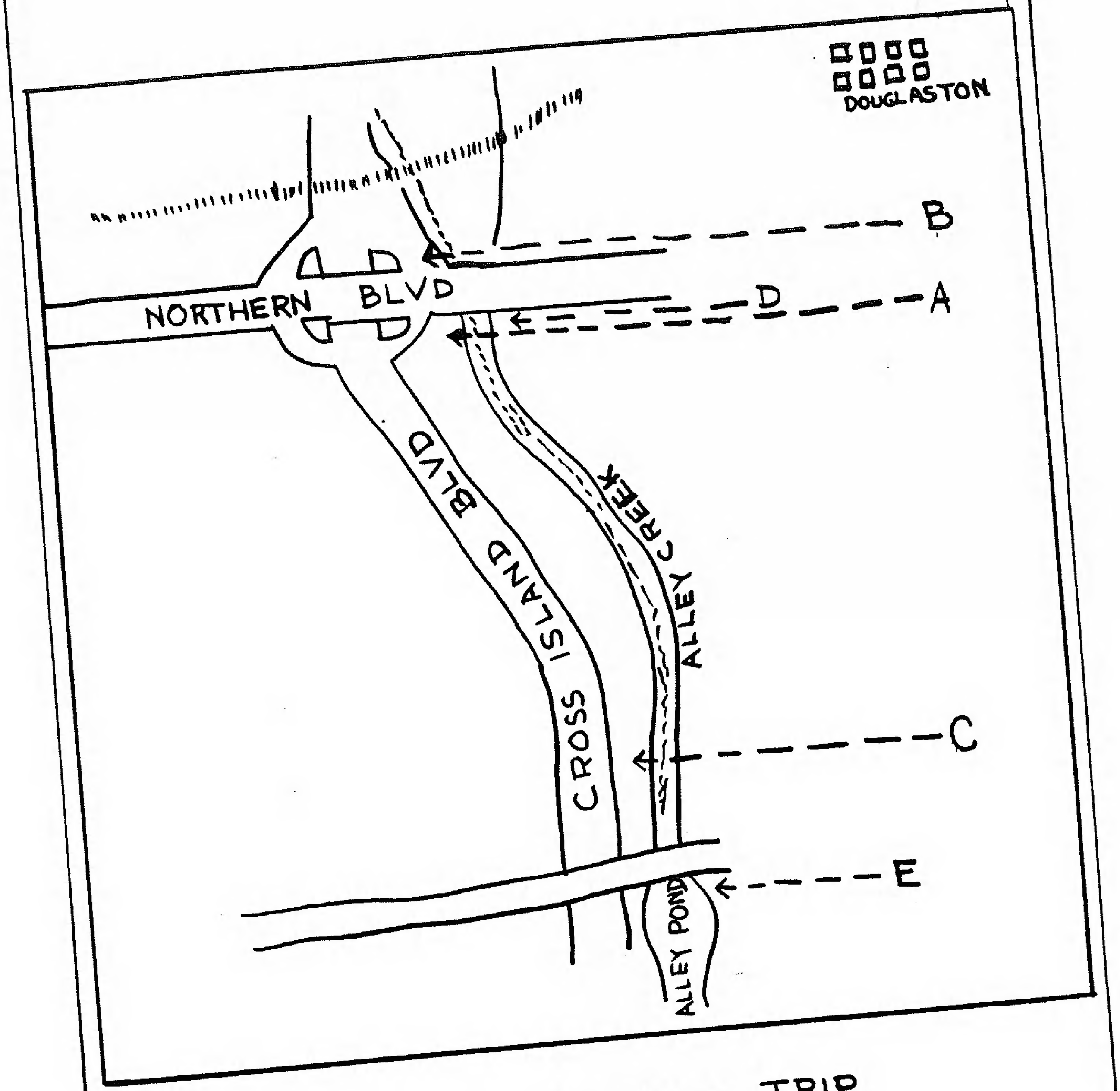
The members present at this excursion were: Mrs. Allen Freas, Miss H. Schroeder, Mr. and Mrs. Anthony D'Attilio, Dr. Walter Jacobs, Mr. George Jacobs, Mr. M. K. Jacobson, Mr. Ernest Jacobson, Mr. George B. Wilmott.

---George B. Wilmott

EDITORS NOTE: In NAUTILUS (vol. 61,p. 132-133) of April 1948, Mr. Robert C. Flipse described the area collected admirably, but reported that he found Cepea hortensis Müller in addition to C. nemoralis, reporting that "C. hortensis apparently being the prdominating species." All in all some 300 specimens of Cepea were collected on this, previous and subsequent trips by the entire Club and by individual members on private excursions. Yet in all this number NOT ONE UNQUESTIONABLE SPECIMEN OF HORTENSIS was collected, although several immature nemoralis showed a lightish colored lip (which later darkened in captivity). Our experience shows the Douglaston colony to be a typical, though richly colored and varied group of Cepea nemoralis.

mkj

PAGE 2



SITE OF FIELD TRIP

NEW YORK SHELL CLUB NOTES NO. 1 p. 3

ROSTER OF MEMBERS

Mr. Edward F. Cowles, Jr.
12 Hillcrest Ave., New Rochelle, New York

Mr. and Mrs. Anthony D'Attilio
102 Hilltop Acres, Yonkers, New York

Mr. and Mrs. H. F. Entwisle
49 Beech St., Nutley, New Jersey

Mr. Harold Feinberg
147 West Tremont Ave., Bronx 53, New York

Mrs. Allen L. Freas
8935 86th St., Woodhaven 21, New York

Mr. Emil V. Gundelach
64 Lispenard Ave., New Rochelle, New York

Mr. George E. Jacobs
845 Riverside Drive, New York City, N.Y.

Dr. Walter H. Jacobs
124 West 93rd St., New York 25, New York

Mr. Morris K. Jacobson
Mr. J. Ernest Jacobson
455 Beach 139th St., Rockaway Beach, New York

Mr. Edward Karlin
2715 Webb Ave., New York 63, New York

Mr. Nick Katsaras
479 B South Washington Ave., Bergenfield, New Jersey

Mr. and Mrs. Arthur J. LeaMond
760 Clinton Ave., Newark 8, New Jersey

Mr. E. Sidney Marks
c/o Blouvelt, Florence St., Leonardo, N. J.

Miss H. Schroeder
8907 89th Ave., Woodhaven, New York

Mr. Fred Tobleman
13 1/2 Brenner St., Newark, New Jersey

Mr. George B. Wilmott
5910 Amboy Rd., Princes Bay, Staten Island, N.Y.

Miss Matilda Weingartner
17 Amelia Court, West Brighton, Staten Island, N.Y.

HIGHLIGHTS OF THE JUNE MEETING

The 346th meeting of the New York Shell Club was called to order by President Mary Anne Bastek at 2:12 p.m. Sunday, June 8, 1986.

The recording secretary read a note from Tillie Weingartner that said she was again home after a brief time in a hospital, but did not expect to be able to attend meetings in the near future. Ira Nadborne said that he had spoken to David DeLucia, our May speaker, who said that he might bring some shells for display at a coming meeting.

Noting that the 300th issue of our NOTES would soon be appearing, Mary Anne said that the Club's directors had recommended that Editor Dorothy Raeihle and George Raeihle be declared Lifetime Members, in recognition of their tremendous contributions to the NOTES. A motion to that effect was made and seconded, and the affirmative vote was unanimous.

It was reported that Carol Lindsay and Theta Lourbacos had been working on the Club library, but that we need an official librarian.

For the annual election of officers, Mary Anne turned the floor over to Linda Ciaston, chairman of the Nominating Committee. Linda reported first that no candidate for the presidency had been found, and none for vice-president. Nancy McTiernan said that she would accept nomination for vice-president if a president could be found. Ira noted that he belonged to a natural history club that had a "rotating presidency" — i.e., members took turns chairing meetings. Dr. Walter Jacobs, a co-founder of the Club and a former president, also volunteered as a candidate for vice-president if a president could be found. He then took a seat next to Ed Cowles, also a former president, and engaged him in a minute's conversation. At its end, Ed declared himself as a candidate for the presidency.

Linda then presented the following slate: President, Ed Cowles; Vice-President, Dr. Walter Jacobs; Treasurer, Theta Lourbacos; Recording Secretary, Milton Werner; Corresponding Secretary, Edna Christensen; Directors, Mary Anne Bastek, Fred Cannon, Nancy McTiernan and Walter Sage. By a show of hands, the recording secretary was empowered to cast one vote for the entire slate, which was done.

The speaker was Walter Sage, who described the process of naming a new species. He outlined the searches that investigators undertake — in the literature, among collections, and through consultation — to make certain that the species in hand was never before described or the intended name preoccupied. He used as an example Conus vicweei, named for Victor Wee, the shrimp trawler and shell dealer in the Philippines who sent three specimens to Bill Old for identification. Starting with the fact that their patterns were sharper and the shells smaller than these features in the similar species, Conus cervus, Bill eventually recognized it as a new species, named it for Mr. Wee, and in 1973 published the scientific description.

Walter also showed slide photos of Cypraea rabaulensis, Lyria leonardi, Lyria russjenseni, Cypraea iutsui and Strombus oldi, commenting on the naming of these species. Photos of Teramachia tibiaformis, T. johnsoni, T. smithi and T. dupreyae served to illustrate distinguishing differences between related species.

Milton Werner, Recording Secretary

G. BARTON BARLOW

We are saddened as we report the death of Dr. G. Barton Barlow on July 27th after a period of declining health, at age 80.

Before retiring from active practice in 1979, he had been on the staff of Englewood (New Jersey) Hospital since 1938. He served as director of cardiology, chief of medicine from 1952 to 1970, and chief of staff from 1955 to 1970. He was the first director of medicine at the Bergen Pines County Hospital when it was organized in 1952. He had been president of the Bergen County Medical Society and the Bergen County Heart Association. His obituary and his photograph appeared in the Bergen Record of July 30.

"Bart's" association with the New York Shell Club began in 1961 when his wife, Alice, discovered our group of shell enthusiasts. Our deepest sympathy is extended to Alice and to their family.

Dorothy Raeihle

OYSTER WATCH

Brookhaven Town Nature Center is open for those interested in watching oysters grow. The center is breeding the oyster larvae in solar ponds which will be transplanted into the Long Island Sound in September. Shellfish technicians will be present to answer questions. The solar ponds and the Nature Center, in Cedar Beach in Mount Sinai (just east of Port Jefferson), are open weekdays from 9 a.m. to 5 p.m. and weekends from 9 a.m. to 6 p.m.

NY Daily News NS1, 7/30/86

OYSTER FESTIVAL SEPTEMBER 27-28

There will be an abundance of Long Island oysters available for harvest this year, according to an announcement yesterday by H. Butler Flower, the 84-year-old operator of Frank M. Flower & Sons, an oyster producing firm on Long Island at Bayville.

Flower made the announcement at the kickoff meeting for the third annual Oyster Festival, to be held in the hamlet of Oyster Bay this year on September 27 and 28.

Dave Relyea, who operates the oyster-and-clam hatchery for Flower, said the firm has deposited 60 million oyster seedlings in the bay this year and will harvest approximately 75,000 bushels of the prime hard-shell seafood delight.

"We restore 100% of the production back into the Sound each year," said Flower, whose grandfather, Frank, founded the company in 1887.

The Oyster Festival has already become one of the biggest tourist attractions on Long Island ... with numerous seafood stands, a world-class bicycle race, oyster-eating and oyster-shucking contests, an art show, craft fairs and special exhibits.

The event is sponsored by the Oyster Bay Chamber of Commerce and it is expected to draw more than 50,000 visitors to Oyster Bay during its two days.

Michael Hanrahan in NY Daily News, May 1986

AMERICAN MALACOLOGISTS EXPANDS AND SHEDS THE NAUTILUS

Dr. R. Tucker Abbott's book publishing firm, American Malacologists, has expanded by opening a New England Division in Burlington, Massachusetts where all future sales will be handled. This will give Dr. Abbott an opportunity to concentrate on research and writing new books from his base in Melbourne, Florida. His daughter, Cynthia Abbott, will fulfill orders for such books as the Compendium of Seashells, and such new books as Seashell Treasures of the Caribbean by Sutty, the mammoth new SEASHELLS OF BRAZIL by Rios, and Bratcher and Cernohorsky's Living Terebras of the World and the Register of American Malacologists. Book dealers should now contact American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

E. J. Brill, a 350-year-old Dutch publishing company, has recently acquired the back stock and rights to The Standard Catalog of Shells and to Monographs of Marine Mollusca, but Dr. Abbott will continue as editor of both. Bob Wagner will continue as editor of the World Size Records. Brill has placed the North American distribution rights to S. Peter Dance's new History of Shell Collecting in the hands of American Malacologists.

The 100-year-old journal, The Nautilus, which was edited by Dr. Abbott for 28 years, has been transferred to the non-profit Trophon Corporation of Maryland and will be edited by Dr. M. G. "Jerry" Harasewych of the Smithsonian Institution. Dr. Abbott will continue to serve as a consulting Associate Editor. Subscriptions and manuscripts should be sent to The Nautilus, P.O. Box 3430, Silver Spring, Maryland 20901-0340. Back volumes will be available from Dr. W. Backhuys, P.O. Box 9000, 2300 PA Leiden, The Netherlands.

NEWS RELEASE: July 31, 1986
For more information, contact
Dr. R. Tucker Abbott.
Telephone 1 (305) 725-2260

AMU-WSM 1986

The joint meeting of the American Malacological Union and the Western Society of Malacologists was held July 1 - 6 in Monterey, California, with 180 registrants. In addition to the regular program of contributed papers, there were special symposia on the biology of opisthobranchs; life history, systematics and zoology of cephalopods; and molluscan morphological analysis. Among special events were field trips to Capitola, Point Lobos, Granite Canyon, and Asilomar State Beach, and a visit to the spectacular Monterey Bay Aquarium. A book and specimen shell auction was conducted and several book dealers provided a large selection of mollusk books and reprints.

The 1987 meetings will be held respectively in Key West, Florida and San Diego, California.

Walter E. Sage

COA 1986

The annual convention of the Conchologists of America was held July 15 - 19 in Fort Lauderdale, Florida. Among scheduled events were a boat cruise on the intercoastal waterway, breakfast on the beach, an auction of specimen shells and related items, dealer sales of specimen shells, and slide talks on various aspects of shell collecting.

The 1987 meeting will be in St. Louis, Richard Goldberg presiding.

Walter E. Sage

CONTROLS ON THE EXPORT OF AUSTRALIAN SHELLS

The Wildlife Protection Act (Regulation of Exports and Imports) came into effect on 1 May 1984 and replaced conservation-oriented controls on Australian international wildlife trade previously operating under the Customs Act. In addition to controlling import and export of species listed on Appendices to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to which Australia and 88 other countries are signatories, the Act regulates export of native wildlife and wildlife products.

The Wildlife Protection Act provides for the private and commercial export of products of Australian native plants and animals where sound management strategies have been adopted to prevent over-exploitation. [Over-exploitation, particularly the demands of international trade, is believed to threaten nearly 40% of the species of animals in danger of extinction.] Management programs for muttonbirds, kangaroos, wallabies, brush-possums and wildflowers were provided by State authorities prior to the Act coming into effect and have been approved.

The Invertebrate Red Data Book of the International Union for the Conservation of Nature and Natural Resources reports evidence of local depletion of populations of mollusks caused by the shell trade.

The current situation concerning export of sea shells by dealers and hobbyists has arisen because no management programs have yet been approved for molluscs contributing to the export trade in shells. While the general question of management of the export of Australian shells is being considered, the Minister for Arts, Heritage and Environment has authorised use of Section 44 of the Act to enable export to continue while long-term arrangements for management are made. A condition of each of the authorities granted is that a person covered by the authority must seek approval from the Australian National Parks and Wildlife Service prior to the export of each consignment of shells.

These authorities have already been provided to many shell dealers and shell clubs and societies. The authorities provided to shell clubs and societies apply to the activities of their members.

The introduction of the Act has provided a mechanism to prevent a repetition, in Australia, of the problems being experienced by other countries and will enable sound management of molluscs to help to ensure the long-term viability of the resource.

The above statement (here condensed) was provided by the Australian National Parks and Wildlife Service, Canberra.

* * *

The Council of the Australian Malacological Society have agreed to undertake a survey ... detailing marine mollusc species at risk and proposing strategies to ban/limit collection of these species from the wild.

Australian Shell News No. 54, April 1986

SINAI REVISITED

Benjamin Singer, Mike Fainzilber and Gil Gat
P.O. Box 6012, 31060 Haifa, Israel

Recently the three of us have been able to visit Sinai, Egypt a number of times. As many things have changed since the Egyptians took over the area, we decided to write this article to help any IMS members planning a similar trip.

Bureaucracy: Documents required are a valid passport, permission from your IDF Reserves Unit to go abroad (Israelis only), international driver's license (driver of car), English translation of car license (obtainable from "Memsi" - the Israeli AA). The car must be registered in the driver's name and he is the only one allowed to drive it. The Egyptians do not allow commercial cars, pick-ups, vans or four wheel drive vehicles across the border! Also check that all your documents are accurate and that the name in your driving license, passport etc. are identical; also that the translation of your car license is accurate. Egyptian bureaucracy is not flexible; the smallest mistake in your papers will prevent you from crossing the border. The visa you will receive is a seven-day visa limited to the Gulf of Elat (Aqaba) coast, not including Ras Mohamed and the area of Santa Katerina. Those of you who want to go further will have to apply for a thirty-day visa via the Egyptian embassy in Tel Aviv. Foreigners can avoid these problems by starting from Cairo and visiting Israel afterwards if they want to. Some nationalities can travel freely throughout Egypt, in any case it is advisable to check with the Egyptian Embassy in your country.

Foreign Currency: You are required to change $6.00 per person in order to pay the tourist levy, and $30.00 per car to pay for a temporary Egyptian license, third party insurance etc. The official exchange rate is 1 Egyptian Pound = $0.80. We found it cheaper to buy Egyptian Pounds from the money changers in the Old City of Jerusalem. They sell the E.P. at a usual rate of $1.00 = 1.20 E.P. Bear in mind, however, that you will have to change enough currency at the border to cover the border charges (see above). The Egyptian banks do not accept the Israeili Shekel as "currency" for this purpose. Israelis who want to purchase $ for a Sinai trip can do so only at a bank branch in Elat, the day they cross the border. The limit is $100 per person. If you don't have the time to stop in Elat maybe some rich uncle can help you out; bank branches in other towns will sell you $ only if you can produce an airline ticket to prove you are going abroad.

Roads and Tourist Services: The roads are in good condition and around Sharm El Sheikh have been resurfaced. There are organised camping grounds at Nueiba, Dahab and Sharm El Sheikh, where you can pitch your own tent or hire a tent for a small fee (5 E.P. at Dahab, 10.70 at Sharm). One is also allowed to camp at other recognized tourist sites such as Ras Burka. No camping or sleeping at the beach in other places — you are liable to be woken up at night and ordered to move elsewhere. Petrol is available at Nueiba, Dahab (in the village) and Sharm El Sheikh. It is fairly low grade but very cheap at roughly $0.15 per liter. Water is available at the three main centers and assorted soft drinks etc. at the kiosks. At Sharm there is a supermarket for tourists (near the Marina Sharm hotel on Naama Bay) where one can get fresh sterilized milk, bread and other groceries. It is advisable, however, to bring most of your food with you. At Nueiba and Dahab the holiday villages are working and at Sharm there are hotels. We didn't inquire about prices as we were camping out. An atmosphere of "manana" is prevalent. Shops and Filling Stations open and close at the whim of the locals and we have yet to pass by the Nueiba Petrol Station and find the staff awake. However, things do get done, eventually. As the staff of the Sharm Petrol Station told me in April: "No petrol this week, but maybe next week, or if not then maybe the week after......."

SCUBA Diving: There is no diving club at Nueiba. At Dahab there is one club, which can only fill tanks and hire equipment. The staff is very small and incompetent; there doesn't appear to be one knowledgeable diver among them. An air refill here will cost 3 E.P. At Sharm El Sheikh there are two diving clubs, offering all the usual services for certified divers: Air refills - 3 E.P., Equipment rental not cheap, boat trips to Ras Mohamed or the Tiran Is' at $40.00 to $50.00 per day (2 dives). The staff is a mixture of nationalities, with very few Egyptians. All the diving instructors are foreigners.

Rules and Regulations: As noted above, one can sleep only at authorized places. Foreigners are not allowed to leave the main road. "Main road" in this context includes the dirt tracks leading to recognized diving sites such as Ras Nasrani or Nabek. Do not try to strike off on your own towards an interesting beach — the Egyptian authorities take a dim view of troublemakers and won't assist you if you get stuck. Keep your passport handy at all times as you may be asked to produce it at any roadblock, beach patrol etc. It is advisable, if you have medical problems or car breakdowns, to try to get to the border. If you must have help in Sinai the best thing to do is to get to the nearest base of the Multi-National Peace Keeping Force (MNF). They have excellent doctors and will help gladly if it is a real emergency.

Conservation and Shelling: Ras Mohamed is a proclaimed marine park and all collecting is forbidden. The exact status of the rest of Sinai is not clear. Signs proclaim "SPEARFISHING AND CORAL PICKING NOT ALLOWED." Spearguns are confiscated at the border and returned on the way back. No mention was made of a shelling ban and nobody bothered us, even though we made no attempt to hide our shelling activities. Obviously we observed the rules of careful collecting, not taking unnecessary quantities of shells and leaving the reef as we found it. The local Bedouin sometimes have common shells for sale, including specimens of *Lambis truncata*. They call this shell the "Abu Saba" (literally "father of seven"), most probably because of the seven digits protruding from the lip of the shell.

Finally some notes about the places we visited and what you can expect to find at each place. Obviously we were not able to visit every possible reef and there is scope for further exploration. It may be worth it, one never knows what is waiting for you on the next reef!

Sharm El Sheikh: Ras Um Sid is a beautiful reef but disappointing for shells. It is worth a visit, however, to float on the reef edge surrounded by a cloud of colourful fish. SCUBA divers will find a beautiful selection of soft corals in the deeper water. At Sharm itself the sandy waters of Naama Bay hide a few *Conus* and *Terebra* species. To the north the area around Ras Nasrani is worth investigating. The reef table has a few nice rocks which shelter assorted cowries and other shallow water molluscs. Gil Gat found a few nudibranchs on the reef wall at 12 meters depth.

Nabek: The road to Nabek is an adventure in itself, especially when crawling along in an overloaded car. The shallow waters of the mangrove lagoon shelter a thriving population of *Strombus tricornis*, some of them quite large. The reef out past the lagoon seems worth investigating, but on the day we were there it was too rough.

Dahab: The Southern Oasis is a lovely patch reef but not very rich in shells. We did however find one beautiful *Cypraea talpa* there and some other commoner cowries. The bay near the village is a sandy desert, nice for swimming and sunbathing but useless for divers. To the north there are a number of interesting reefs, with *Cypraea nebrites* very common. Altogether we found a total of 8 *Cypraea* species, 14 *Conus* species, and innumerable quantities of other families. Finds worth mentioning in this area were a dead *Cypraea pulchra*, another dead *Cypraea nucleus* and a very large *Conus textile*.

Nueiba: We didn't find anything much near Nueiba itself. At the fishing village to the south of Nueiba the Bedouin tried to sell us some beach shells, and spoke of reefs with "many, many shells" some 2 km south of the village through the sand dunes. If anybody visits there in the future we would like to hear from him if the stories are true.

Ras Burka: The main disadvantage at Ras Burka are the hordes of Israeli families camping there during the holidays. The general atmosphere is of an uncontrolled and rowdy fish market, not conducive to relaxed diving, shelling or scientific research. If one can manage to beat a path through the crowds (tripping over umpteen obnoxious children trying to get a better view of your diving equipment), the reef is worth investigating. This is definitely a place for good divers as the coral starts at 6 meters depth, and the current can be quite strong.

The Fiord: The day we visited the Fiord it was very rough and impossible to dive in the Fiord itself. The Sun Pool nearby has a small, not impressive reef that produced one *Homalocantha anatomica* and not much else.

To sum up, the reefs of Sinai are still there, relatively undamaged and still very beautiful. The Egyptians are friendly, the shells are available if you can find them, the sun shines all year 'round and an atmosphere of peace prevails. The "Cold Peace" is only on the political level; the people are glad to welcome tourists. So go there, and when you come back let us know what you can add to the information above!

Reprinted from LEVANTINA No. 53:609-613, December 1984,
A Malacological Newsletter of the Israel Malacological
Society and the Municipal Malacological Museum, Nahariya

* * *

In NYSC NOTES No. 299:9 we published extracts from Egypt's Conservation Law which was presented in its entirety in LEVANTINA No. 52: 599-604 with a postscript by the editor, Henk K. Mienis.

LEVANTINA is a publication we receive in exchange. The file is in our NYSC Library.

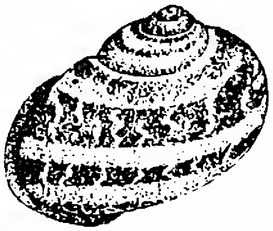
OF HELIX ASPERSA

An article entitled "Taming the Wild Escargot" by Michael McRae appeared in the January/February issue of the magazine "Harrowsmith" which is published by the Frontenac Company, Harrowsmith, Ontario.

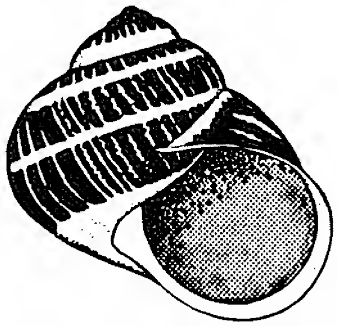
The article reports in detail the work of "two youthful entrepreneurs," Tracy Brash and Michael Beyries, in establishing a business in Petaluma (Sonoma County) California wherein they create "Gustatory alchemy: the magical transformation of *Helix aspersa*, from voracious pest to epicurean delicacy." They are processing some 300,000 specimens per month under the firm name "Enfant Riant" which appears on the label of the can above the legend "California / Escargot / in water / 3 dozen Petit Gris / Net Wt. 7 1/2 oz."

Mr. McRae's introductory paragraphs give us a bit of history: It is said that in the 1850's a Monsieur Delmas, driven by an epicurean passion, was the first to import the common garden snail, obtaining a supply of them from the Continent and releasing them in an orchard near present-day San Jose, hoping they would proliferate and provide him with an endless supply of hors d'oeuvres. In less than two years they were reported in Los Angeles, more than 350 miles to the south — and today they infest every county in the state. Others blame the Spanish missionaries, who are said to have imported them with the original grapevine cuttings. But whatever the source, *Helix aspersa* is a plague on the land of California. Farmers and gardeners, like the state itself, spend untold millions to undo what M. Delmas (or the Spanish fathers) hath wrought.

Helix aspersa
Muller, 1774



Drawing by D'Attilio



Drawing by Burch

Mr. McRae's supplementary note, entitled "Home Heliciculture," brought a screaming protest from Alice Ramirez of Los Angeles, who obviously knows whereof she speaks. Her response appeared on the Letters page of Harrowsmith's May/June issue. She writes (in part):

... The suggestion that people interested in home snail farming might import a few of the little slimers from California (or elsewhere) actually made me shudder.

Never forget that the fledgling industry that Enfant Riant represents is the result of an already existing and ongoing disaster.

States such as Florida and Oregon have imposed bans on the importation of live *Helix aspersa* for excellent reasons. I feel strongly that all states as yet unplagued by these little helixian horrors should do likewise. Snail starter kits, too, should be banned. These animals are a *pernicious agricultural pest* that have wreaked havoc on California's important farming and orchard industries. As a home gardener, I must say that if I had a dollar for every time I cursed snails for damage done my garden plantings, I would already own my dream vacation home on the shores of the Salton Sea!

McRae maintains (in my opinion, with blissful ignorance) that cold weather will kill them and desert climes will suck the life out of them because snails need water. I am here to tell you that it ain't necessarily so. If they get loose, you could have a major mess on your hands, no matter where you are.

Unless you live in true desert, miles from any neighbors who might be using water on their own summer garden, these pests will find enough water to survive by burrowing into the earth and going dormant when the heat and aridity become too intense. ...

Your writer maintains that cold weather will kill them. Maybe so, but these little monsters are survivors. If there is a warm place to be found, in or under a hot frame, in a greenhouse, near (or most likely inside) a ventilation hot air duct (or any duct warmer than outside) these creatures will find it. I promise you, they will find it.

Or they will stick by their feet to the undersides of cars or trucks and be transported someplace warmer. Remember, set loose in San Jose, they made it to Los Angeles within two years. They didn't get there by walking.

Also, who is to say that a few abnormally cold-hardy Helix aspersa won't survive to multiply? All it takes is two, and you'll have plenty more.

I can think of two possible scenarios for disaster that will never show up in a typical Hollywood movie: One careless (or malicious) person sets these creatures free. Or someone's small child decides to play with snails from the family snail farm and takes them outdoors loose. He loses interest after awhile and wanders away, and the snails do likewise.* Once out, they'd be very hard to find, since they blend almost perfectly with dirt and dried leaves.

Please, please — unless you happen to live in a snail-ridden state already — consider escargot a luxury and buy the cans. Don't invite trouble into your own garden and your neighbors' gardens and possibly even ruin (or very seriously damage) some important agricultural crop grown in your state.

Don't become another Monsieur Delmas.

— Alice Ramirez

*[In 1966 a boy brought in three specimens of Achatina fulica, carrying them in his luggage from Hawaii. The "pets" were turned loose in grandma's yard in North Miami. Three years later the City of Miami had started an intensive search and destroy program for the infested section, enlisting the help of volunteers who collected hundreds of the progeny of only these three specimens. In June of 1972 Bill Old noted that the Achatina fulica were still a nuisance in Miami and Hollywood areas. (See: NYSC NOTES 155.6, 183.4) So it can, and has, happened. — Ed.]

1987 SHELL DESK DIARY

On June 14th, 1986 we received the following information from R. J. Garlington of the Shell Service Bureau: To order your 1987 Shell Desk Diary, please complete the order form and remit $5.00 for each diary desired before June 15. Orders received by June 15 will be delivered during November. The availability of diaries order after that date cannot be guaranteed. Address: Shell Desk Diary, P.O. Box 2663, Houston, Texas 77001. Good luck!

REVIEWS:

SEASHELLS OF BRAZIL

by E. C. Rios. 1986. 328 pp, 102 pls. (1421 illus.). Museu Oceanographico, Rio Grande, Brazil. Softcover, 8" X 11". U.S. $25.00.

Brazil, the largest country in the Americas, has one of the most diversified and interesting marine faunas. Its long shores are influenced by four major zoogeographical regions — the colorful, tropical Caribbean province to the north; the temperate, cool Argentinian and Uruguayan influence in the south; the highly endemic Pernambuco subprovince; and the occasional invasion of transatlantic species coming from West Africa.

Dr. Eliezer Rios, Director of the Museum of Oceanography in Rio Grande, has met the challenging and massive array of over 1400 Brazilian marine mollusks by now producing a huge new tome with superior photographs of all species, and accompanied by English descriptions and detailed locality and habitudinal records. There are illustrations of 1000 gastropods, 30 scaphopods, 360 bivalves and 26 species of cephalopods. This book picks up where American Seashells leaves off. It is not only a thorough coverage of the Brazilian marine mollusks, but is also a guide to many of the common shells of the Caribbean and Uruguay.

The book is easy to use, with each of the species properly assigned to order, family, genus and subgenus, and with a convenient reference number which allows the user to find quickly the proper photograph among the 102 plates of black-and-white photographs. Authors, dates and synonymies are given for each species, and there is a large bibliography of 800 references to scientific papers dealing with South American marine mollusks — perhaps the largest ever offered to the public. The index has 4000 scientific names alone. We are spared the indignity of any new species being proposed in this book.

Despite the brief title, this book will be a useful reference tool and a much-consulted illustrated guide to the shores stretching from the islands of the West Indies to the beaches of northern Argentina. No recent book for its modest price has so much to offer.

— R. Tucker Abbott

SEASHELL TREASURES OF THE CARIBBEAN

by Leslie Sutty. Edited by R. Tucker Abbott. E. P. Dutton, New York, 1986. 128 pp., 139 color plates. Price: $19.95 (with autographed, numbered bookplate, $21.95) from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

The author, an accomplished naturalist, diver and photographer, has chosen 100 species of Caribbean mollusks "to illustrate and comment upon so that the reader may share my enthusiasm and joys in discovering the shells of these beautiful tropical islands." She has attempted to inspire others to study mollusks by relating her experiences in seeking these elusive and fascinating animals in the Lesser Antilles. Her lively and engaging narrative, coupled with her stunning photographs, are certain to provide any shell lover with many hours of pleasurable reading, and should stimulate interest in seeking and observing marine shells.

A preface by the editor and the author's introduction are followed by chapters entitled "What is a Rare Shell?", "Strange and Beautiful Shapes", "Treasures of Sea and Reef", and "Science in Shells." Rare shells discussed and illustrated include Cypraea surinamensis, Pterynotus phyllopterus and Conus granulatus, to name just a few. Unusual mollusks, such as Umbraculum umbraculum, Glossodoris clenchi and Xenophora conchyliophora become familiar through the author's animated writing style. The bulk of the species are treated in the "Treasures" chapter where we meet the rediscovery of Hexaplex strausi and such desirable species as Lyria archeri, Conus cedonulli and Chlamys multisquamata. An abbreviated history of Caribbean malacology followed by a brief bibliography, index, and a glossary of terms, completes the text.

There is a great deal of merit in this beautifully illustrated book, and it is important again to stress that the author has fully achieved her aim of sharing with others her collecting activities. This book is not intended to be an identification guide.

Despite meticulous editing, last minute publisher's errors do creep in, such as the transposition of the captions for plates 22 and 23 on facing pages, and the indiscriminate placing of parentheses around every author and date. Nonetheless, it is hoped that this well-produced and lavishly illustrated work will be enjoyed and appreciated by nature lovers and conchologists, and will serve to introduce living mollusks to many new enthusiasts.

Walter E. Sage. Also in
NAUTILUS 100(3):113-114.

These recently published guides to the mollusk fauna of two areas in Spain are welcome additions to European malacological literature. The first could be described as an illustrated catalog of the gastropods taken in the Ria de Vigo region, with much introductory and supplementary material. The second is termed an annotated checklist, based primarily on shells washed ashore at or near Getares (south of Algeciras). Both volumes are available from Seashell Treasures Books, 1701 Hyland Street, Bayside, California 95524.

MOLUSCOS de la RIA de VIGO I, GASTEROPODOS

by Emilio Rolan Mosquera. 1983. Published in Spain by the author. 383 pp., black and white photos. $41.75.

This volume is written in Spanish, and thus much of the supporting information is less useful to those not versed in that language. Included in these accompanying data are habitat information, collecting methods, general statements on the Ria de Vigo, and background facts on the nature of this study. The bulk of this paper consists of the systematic classification of the 435 gastropod species recorded from this region of the northwest coast of Spain. Included are keys to class, family, and genus, and a list of species treated. For each species, scientific name, author and date are provided, though in some cases only tentative identifications are made. Data presented with each species are description, size, distribution, discussion, previous literature references for Ria de Vigo, bibliography, line drawings, and enlarged black and white photos. An extensive general bibliography and index complete this volume.

While the price is rather high, the data and quality of presentation make this a volume well worth adding to one's malacological library.

THE MARINE MOLLUSCA OF THE BAY OF ALGECIRAS, SPAIN, with general notes on Mitrella, Marginellidae and Turridae

by J. J. Van Aartsen, H. P. M. G. Menkhorst, and E. Gittenberger. 1984. Supplement 2 to Basteria, the Dutch malacological journal. 135 pp., black and white photos, no price indicated.

Here is a check list of the 394 molluscan species recorded by the authors from the beaches and littoral zone of this far western Mediterranean area. The species list is cross-referenced to the extensive bibliography, including references to illustrations, but only selected species are figured herein. Family names are used only where pertinent to the species treated; species discussions are systematically arranged, and include scientific name, author and date, references, and various lines of commentary. Seven new species and two replacement names are introduced. Supplementary notes on _Mitrella_ (Columbellidae), Marginellidae, and Turridae complement the species list. A comprehensive bibliography and index complete this study. The data presented are well documented and the paper will prove essential to those students of the European molluscan fauna.

Walter E. Sage

SEASHELLS OF WESTERN AUSTRALIA

by Fred E. Wells and Clayton W. Bryce. 1986. Western Australian Museum, Perth. 207 pp., 74 colored pls. Paperback. $17.95 Australian, (approximately U.S. $12.50).

This is an excellent, well-illustrated guide to the more common and readily found species of marine mollusks of Western Australia. The western third of Australia is particularly rich in molluscan species because of the meeting of the tropical Indo-Pacific province in the north with the colder temperate waters of South Australia and Tasmania. Of the approximate 2000 species from this region, this accurate guide beautifully illustrates 671 species, including many photographs of living specimens of opisthobranchs and cephalopods. Each family is defined and, when available, useful bibliographic references are included. Scientific name, author and date, size, geographical distribution, relative abundance within Western Australia, and an excellent photograph are given for each of these common and conspicuous species. A short introduction on protecting mollusks, cleaning and maintaining a collection of shells, together with a glossary and index round out this fine little book.

R. Tucker Abbott in
NAUTILUS _100_(3):113

DANGEROUS MARINE ANIMALS OF THE PACIFIC COAST

by Christina Parsons. 1985. Sea Challengers, 4 Sommerset Rise, Skyline Forest, Monterey, California 93940. 96 pp., paperback. $4.95.

A comprehensive guide to the various harmful species of marine life of the Pacific coast of the United States.

Detailed descriptions of members of: Invertebrates, fish (poisonous, biting, shocking), sea snakes and marine mammals. Each family member description lists: description, hazard, prevention, symptoms and recommended first aid.

⟶

Appendices contain: Recommended contents for first aid kits, where to get medical help, and marine life protected by law.

Sea Technology 27(5):53, May 1986

IT'S EASY TO SAY CREPIDULA! (kreh PID' yu luh)

by Jean M. Cate and Selma Raskin. 1986. 155 pp. Pretty Penny Press, P.O. Box 3890, Santa Monica, California 90403. Paperback, $19.95 plus $1.50 postage.

This is a useful phonetic guide to the pronunciation of the scientific names of about 3,000 common molluscan taxa. The authors usually give two pronunciations, one evidently used in American Latin classrooms, the other used customarily among most American malacologists. Readers may take their choice. However, the customary pronunciation of the -ae ending, used in species named for a woman, is not given. The name myrakeenae, for instance, is usually pronounced: MY'ruh-KEEN'ee, but the authors give only MY'ruh KEEN'ay and MY'ru KEEN'eye. They are correct in suggesting that names for males, ending in -i, may be pronounced "eye", as in laurenti: law RENT' eye. There is also an eleven-page glossary of malacological terms.

R. T. Abbott in
NAUTILUS 100(3):113

ANNOUNCEMENT:

MALACOLOGY DATA NET

Ecosearch Series, Arthur H. Clarke, Editor. 1986. Ecosearch, Inc., 325 East Bayview, Portland, Texas 78374. Subscription $14.50 per year (6 numbers).

A new and unique journal devoted to the prompt dissemination of scholarly, innovative, and timely information in malacology. Manuscripts are solicited. ... "Data Net" will specialize in those areas where the need for rapid publication is clearly indicated (most manuscripts will be published within eight weeks following acceptance). Such areas include: crises affecting the survival of species and of communities, description of new taxa, development of new methods for assessing the reproductive health of molluscan populations, requests for information or specimens in support of research, and new ideas about natural selection and evolution which have broad application.

Issue #1, published April 11, 1986, contained an urgent paper describing how Corbicula infestations have devastated freshwater mussel populations in Virginia and North Carolina. ...

Excerpts from the publisher's announcement by Arthur H. Clarke, Editor.

MOLLUSCAN MASCOT

An article on the Sports page of the New York Times of May 14, 1986 reports that "Bowing to pressure, Chancellor Robert L. Sinsheimer yesterday deposed the friendly sea lion and adopted as the official mascot of California-Santa Cruz the banana slug, a slimy, yellow, snail-like, half-foot-long creature that often oozes out of the nearby redwood forests to invade the campus. ... The banana slug has been a popular figure at Santa Cruz; indeed, yesterday's action followed a series of advisory votes by athletes and other students urging its adoption." [Sorry the reporter did not see beauty in the creature!]

READER'S FORUM

In the publication Shells and Sea Life 18(1):2, Editor Steve Long wrote: "I have published 199 editions of this magazine over seventeen-plus years and intend to continue for many more years. I am not aware of any malacological publication in the world which has continued longer with the same editor."

* * *

From R. Tucker Abbott to Steve Long: "You should have qualified your recent statement in your January 1986 'Editor's Notes' in which you profess that you are 'not aware of any malacological publication in the world which has continued longer with the same editor' [than Steve Long for Shells and Sea Life].

Among the editors still actively editing current mollusk publications for longer periods than 'seventeen-plus years' are Dorothy Raeihle (New York Shell Club Notes for 227 issues and 25 years), Glenn R. Webb (Gastropodia for 24 years), Tadashige Habe (Japanese Journal of Malacology for 22 years), Kety Nicolay (La Conchiglia of Italy for 19 years), and myself as co-editor for 28 years (acting or main editor for 20 years) of America's oldest continuing mollusk journal, The Nautilus.

Henry A. Pilsbry served the longest (for 68 years for The Nautilus). J. R. Tomlin served 37 years as editor of the still continuing British Journal of Conchology; W. J. Clench edited Johnsonia for 25 years, as did R. Stohler for The Veliger. The oldest extant mollusk journal is the German Archiv fur Molluskenkunde, begun in 1868, which has had several editors who served more than 30 years each.

MISCELLANEOUS NOTES AND NEWS

The American Littoral Society is planning a gala 25th anniversary meeting for the three-day weekend September 25-28, 1986 at Chincoteague, Virginia. Rooms, meals, and HQ will be at the nearby Marine Sciences Consortium. Address the American Littoral Society, Sandy Hook, Highlands, New Jersey 07732, or telephone (201)-291-0055 for details.

The scallop is a migratory animal. Years ago they disappeared from certain fishing grounds off the Carolinas, to turn up off Cape Canaveral in the early 1970's. Now they have left the areas off Port Canaveral for parts unknown. Nobody knows why they come and go, but when they are found again they may have increased their numbers considerably.

The banana slug is a majestic creature as it glides along its path. The scientific name is Ariolimax columbianus. It is native to western North America, gets its common name from its color and size, and is said to be able to stretch out to 10" in length while crawling.

A thriving colony of Corbicula has been discovered in a pond in the "green belt" between Bellmore and Wantagh; also present: Viviparus and Anodonta. This pond is about 3 miles west of the colony in Massapequa Lake (see NOTES 287.9, June 1983).

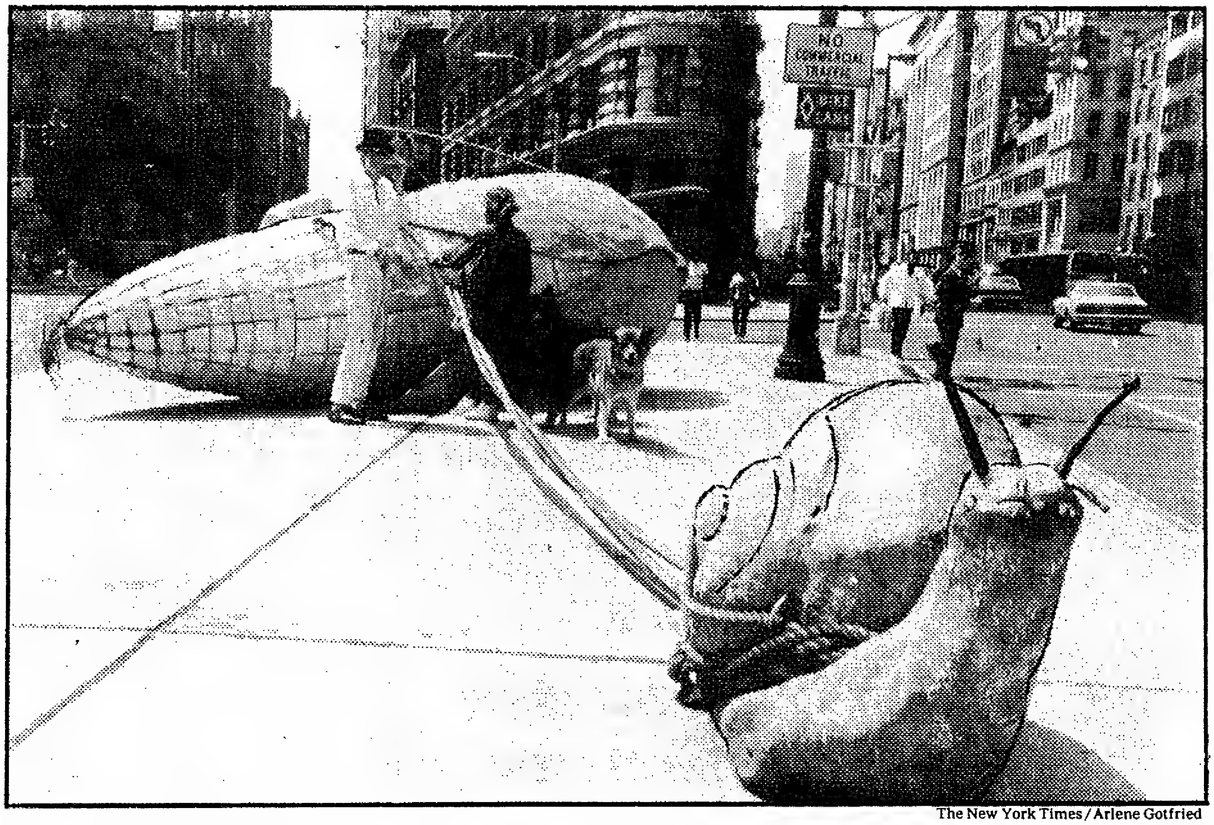
In 1774 Müller described Helix aspersa; the only locality data was "in Italia." How it has travelled!

"SOCIAL PROGRESS"

Symbol of Struggle Visits Fifth Ave.

Christy Rupp's "Social Progress," sponsored by the Public Art Fund, is an allegorical sculpture directly in front of the Flatiron Building. It consists of a 17-foot-long ear of corn that looks like a bomb waiting to explode. Feeding on it are two huge black ants. In front of the corn, dragging it along inch by inch, is a six-foot-long snail with steel tentacles and a goofy expression. Social progress sure is slow.

If all this sounds self-important, it isn't. There is humor in Rupp's work. There is also an intriguing struggle between an attraction to social symbols drawn from the natural world and an identification with the natural world so strong that it compels us to see those symbols as living things. (Through November 30.)



The New York Times/Arlene Gotfried

"Social Progress," Christy Rupp's sculpture of a snail towing an ear of corn and two ants, stands in front of the Flatiron Building, 23d Street and Fifth Avenue.

"I haven't seen anything like this," said Rick Saunders, a student at the School of Visual Arts. "It's different from the modern art I'm used to seeing around town. Mostly the stuff is a bunch of abstract monoliths that scares you off. But this brings you into it.

Mr. Saunders was looking at "Social Progress," the steel-and-plaster construction of a two-foot high gray snail pulling a six-foot-high yellow corncob with a thick rope.

"The work is about struggle and working hard to overcome insurmountable odds," Miss Rupp said.

New York Times 5/21/86.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

EDNA M.CHRISTENSEN
68-45 Harrow St.
Forest Hills, N.Y. 11375
718-261-7089

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, NANCY P. McTIERNAN

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

The Corresponding Secretary should be notified promptly of any change of address.

FOR NEW YORK AREA MEMBERS

SCHEDULE OF MEETING DATES FOR 1986-1987

The second Sunday of each month, September through June in Room 419, American Museum of Natural History, at 2 PM, except for the April meeting which is a combined auction/social. The Museum is at Central Park West and 79th Street, New York City.

September 14, 1986
October 12, 1986
November 9, 1986
December 14, 1986
January 11, 1987
February 8, 1987
March 8, 1987
April 12, 1987
May 10, 1987
June 14, 1987

Our meeting room will be open at 1:30 PM on meeting days. This will provide time before the formal meeting to get a problem shell identified, suggest programs or activities for N.Y. Shell Club, glance at recent publications, or just visit with new and old friends.

One of our new 'calling cards' is enclosed for your information and use. We hope you will think of a friend or organization interested in our program to give it to. Additional supplies will be available at every meeting, or call Nancy McTiernan at 718-855-1659.

N.Y. SHELL CLUB LIBRARY - We hope to complete arrangements soon for New York area members to again borrow books from the Club's Library. Those who now have books or publications belonging to N.Y. Shell Club are urgently requested to return them at the next meeting so the inventory can be finished. Then a list will be provided so that members may request the book they would like to borrow.

Last, but not least, we will continue our (very popular) shell door prizes at each meeting.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in

ROOM 419, AMERICAN MUSEUM OF NATURAL HISTORY

DECEMBER 14, 1986, at 2:00 p.m., will mark the 350th official meeting of the New York Shell Club. The presentation:

LOVELL REEVE - AMATEUR CONCHOLOGIST? A slide program prepared by Jean Cate. This will be followed by a swap session. Bring your extra shells and swap with a fellow collector!

JANUARY 11, 1987, at 2:00 p.m. A presentation with slides:

SHELLING IN NOVA SCOTIA, by guest speaker Richard Kelly of the Long Island Shell Club.

FEBRUARY 8, 1987, at 2:00 p.m. A presentation entitled:

UPDATE ON THE NAUTILUS, by guest speaker Neil H. Landman of the American Museum of Natural History.

CONTENTS

		Page
Obituary: Virginia Orr Maes	Dorothy Raeihle	2
The Clench Trophy Award	Cecelia W. Abbott	2
Morris Karl Jacobson Scholarship	Astronaut Trail S. C.	3
Highlights of the September Meeting	Milton Werner	3
Highlights of the October Meeting	Milton Werner	4
Dates to Mark on Your New Calendar		5, 17

REVIEWS:

Between Pacific Tides, 5th edition by Ricketts, Calvin & hedgpeth	David K. Bulloch	5
Shells of the Philippines, by Springsteen & Leobrera	Walter E. Sage	6
Coquillages du Gabon - Seashells of Gabon, by Bernard	Walter E. Sage	7
The New EDIBLE? INCREDIBLE! by Pill and Furlong	L. S. in HSN	17

ANNOUNCEMENT:

A History of Shell Collecting, by S. Peter Dance	Editor	8
A Further Range Extension of the Asiatic Clam	Foehrenbach & Raeihle	9
Update on Corbicula in L.I. waters	Dorothy Raeihle	12
On the Menu (Corbicula) (an excerpt)	Tadashige Habe	12
Off the Menu	Conch. Newsletter	12
Of Mussels and Barnacles (adhesives)	Editor	13
Of Sea Whip and Sponges (medical)	Editor	13
Eleuthera	Harriet Hough	14
Of Long Island's Scallop Industry	Editor	15
Wake Island Shelling	Edward A. Dunlap, M.D.	16
Save This Snail!	NY Daily News Editorial	18

1986/1987

WE WISH YOU HAPPY HOLIDAYS AND A SUCCESSFUL NEW YEAR!

VIRGINIA ORR MAES

It is with deep sadness that we report the death of Virginia Orr Maes, Research Fellow in the Department of Malacology of the Academy of Natural Sciences, Philadelphia. She succumbed to cancer October 24th at age 65.

Virginia was born in Philadelphia, attended The Baldwin School and Wellesley College, and was a professional photographer before she joined the Academy's staff in 1955 as Scientific Assistant. In line with her work, she accompanied expeditions to far-away seas as well as the Caribbean. Long-time members of the New York Shell Club will remember her visits here to talk to the club about mollusks and also of exotic islands.

During the last several years her interest was in large part with the Turridae, a large and complex family of small mollusks which she referred to as "the little critters." Her work resulted in substantial contributions to the science of malacology, of which she wrote in FOOTE PRINTS 31(2):11 (Philadelphia, 1960):

> A large number of facts about mollusks have been accumulated, but the phylum is large and ancient, its species diverse. There are unnamed species and species with too many names. Feeding and breeding habits of most mollusks are not known. Patterns of distribution and factors affecting distribution are only beginning to take form. The malacologist may turn to any phase of his subject and find a host of interesting problems. Having solved them, he will find many more.
>
> But mollusks do not merely lead the scientist or the amateur into a labyrinth of blind alleys. Malacology is a stimulating science; it provides ample material for the basic studies of speciation and evolution. It promises valuable discoveries to the explorers in its realm. This is the inevitable reward of the scientist who seeks to read the book of nature.

"Dinty" was a warm and friendly person. We feel a personal loss, and join her many friends and associates, her family and husband, in mourning her passing.

Dorothy Raeihle

THE CLENCH TROPHY AWARDED

For the third year, the William J. Clench Award for the most outstanding exhibit of land and freshwater mollusks was presented at the July, 1986 Jacksonville Shell Show in Florida. The trophy was originally conceived by Cecelia W. Abbott and designed by Allan Walker of Jacksonville, Florida. The award honoring the Harvard malacologist and presented only at this show, has become a featured trophy each year. Because of Dr. Clench's keen interest in nonmarine mollusks and his record of encouraging amateurs to participate in the hobby of conchology, this trophy was created to encourage exhibitors to enter the land and freshwater categories.

This year the award was won by Dr. and Mrs. Alfredo Romeu, former residents of Cuba and now living in Jacksonville, for their exhibit: "Tree and Land Snails of the World." Earlier winners were Archie Jones of Miami for his outstanding Liguus tree snail exhibit in

1984, and in 1985 Zida and William Kibler of Shallotte, N. C., for their educational exhibit on worldwide land shells.

A Clench Scholarship Fund was also established in 1983 by the Boston Malacological Club to honor Dr. Clench's development of students in malacology at Harvard University. He was also a research assistant at the American Museum of Natural History, New York, from 1947 until his death in 1984 and was a former honorary life member of the Jacksonville Shell Club.

Cecelia W. Abbott

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida, again offers a grant of $500.00 to a student who is registered for a Masters or Ph.D. degree in an accredited Florida college or university and is engaged in a research project, or preparing a thesis, dealing primarily with the natural history or systematics of mollusks.

Applicants should submit a brief educational resume, an outline of the research project, the use to which the money will be put, and a letter of recommendation from his or her chief advisor. Applications should be mailed to the Chairman of Scholarship Awards, Astronaut Trail Shell Club, P.O. Box EG-515, Melbourne, FL 32935 before January 15, 1987. Funds from the grant are used to defray expenses directly connected with the student's research project. Previous applicants, other than former winners, may re-apply for this grant. Members of the club or their immediate family are not eligible for this scholarship.

This scholarship is given in memory of Morris Karl Jacobson, an Honorary Life Member of the Astronaut Trail Shell Club who made many scientific contributions to malacology, and was author of several popular books on shells and sealife.

The Astronaut Trail Shell Club of Brevard, Inc.

HIGHLIGHTS OF THE SEPTEMBER MEETING

Following her regular report, Treasurer Theta Lourbacos suggested sending a note of appreciation to Editor Dorothy Raeihle on the occasion of the publication of New York Shell Club Notes No. 300. Approval was indicated. Al Scarpetti's special cover design for the issue was displayed.

President Ed Cowles introduced Nancy McTiernan, who reported on an executive committee meeting held August 6th at Theta Lourbacos's home. The major topic of discussion was ideas to build membership. Nancy drew attention to a draft of a publicity flyer that had been placed on the table at the rear, and asked for comment. It is also planned to approach other outdoor and nature clubs to find people also interested in shells. An information card about the club will be printed, and supplies placed in shops and at counters where shells are sold. Nancy had written to the New York Times, asking that the club be listed in the Weekend Section, preferably in October. Walter Jacobs moved that these plans be given official approval, and this was done.

Theta noted that the question had been raised of having a new supply made of club pins. There is no supply at present. Several members expressed interest, and it was moved and carried that she look into ordering a new run of pins.

Edna Christensen read a letter from the Raeihles, thanking the club for declaring them Lifetime Members.

Carol Lindsay reported on the experience of attending a show presented by the Cape May, New Jersey Shell Club, and of speaking with some of its members.

The first speaker was Dr. Walter Jacobs, whose subject was the present interest in the adhesive by which Mytilus attaches its byssus to rocks, pilings, etc. Previously, the focus of attention had been the adhesive material of barnacles. An extremely strong glue that would start, set and hold in salt water would be of tremendous value in dentistry. The Navy and ship builders are also interested. Genex and Biopolymetrics are two of the companies trying to find a way of synthesizing the Mytilus adhesive.

The chief speaker was Gary Rosenberg of the Museum of Comparative Zoology. Gary's presentation was a photo-brainteaser titled "What Shell is That?" He had made dozens of extreme close-up shots of shell surfaces, typically covering an area from a quarter-inch to a half-inch square. The textures and structures shown were enough to identify the shells, if one were familiar enough with the species to make the connection. Many found the challenge an extremely difficult one.

Those present signed a sympathy card for Alice Barlow and a 90th birthday card for Waverley Harmon.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE OCTOBER MEETING

Treasurer Theta Lourbacos reported having received a letter from Ernestine Zoeller with which was included a check for her dues plus a donation of $10, and a letter from Waverley Harmon thanking the Club for her 90th birthday card, and a letter from Betty Renman in which she extended greetings and said that she is unable to be at most meetings. Theta also reported that Edna Christensen was due for surgery and that Theta would send a card. No action has been taken as yet on ordering a new supply of club pins.

President Ed Cowles drew attention to a miscellany of printed material on the front table and a letter from New Caledonia announcing shells for sale. Nancy McTiernan reported having written to the New York Times, but as yet has seen no mention of club meetings in its activities section. She would appreciate help in identifying clubs whose members might be interested in the New York Shell Club.

Dr. Walter Jacobs, retired from dentistry, reported having become medical librarian at St. Claire's Hospital. In his reading there he found a mention of a human disease called Molluscum contagiosum. Intrigued by the name, he did some research and learned that it is a virus disease, and that it got its name because the skin vesicles it causes form around what are described as (resembling) "molluscoid bodies."

On display were shells from the Red Sea collected by Allen Aigen.

A second display was a collection of miniatures representing more than fifty species and subspecies, collected by Bert Draper and brought in by Walter Sage. The door prizes were (1) a *Strombus sinuatus*, won by Allen Aigen, and (2) *Lambis millipeda*, won by Bernard Kinsey.

The speaker was Richard Goldberg who described, with the aid of slides, a collecting trip to Greece. In the course of eighteen days he visited ten of the Greek islands, doing both marine and land collecting. He confined the presentation to land collecting, explaining how he had covered an amazing amount of ground by renting cars and motorcycles. His slides covered both scenery and shells.

Milton Werner, Recording Sec'y.

DATES TO MARK ON YOUR NEW CALENDAR (also page 17)

March 5 - 8, 1987	Golden Anniversary Sanibel Shell Fair, P.O. Box 76, Sanibel, Florida 33957.
June 21 - 25, 1987	Twentieth annual meeting of the Western Society of Malacologists, on the campus of San Diego State University. Carole M. Hertz, Department of Marine Invertebrates, San Diego Natural History Museum, P.O. Box 1390, San Diego, California 92112.
June 23 - 27, 1987	Convention of Conchologists of America at St. Louis, Missouri. President Richard Goldberg, P.O. Box 137, Fresh Meadows, New York 11365. Convention Chairman, Alan Gettleman. Headquarters: Day's Inn Hotel at the Arch.
July 19 - 23, 1987	Fifty-third annual meeting of the American Malacological Union at the Casa Marina Resort, Key West, Florida. President William G. Lyons, 4227 Porpoise Drive S.E., St. Petersburg, Florida 33705. Symposia will be on (1) chitons and (2) tertiary fossils.

REVIEWS:

BETWEEN PACIFIC TIDES, 5th Edition

by E. F. Ricketts, J. Calvin and J. W. Hedgpeth. Revised by D. W. Phillips. 1986, Stanford University Press, Stanford, California 94305. 652 pp., $29.50. (This excellent work is an ecological treatise arranged by ecological divisions and zones of the coast, rather than by phyla.)

BPT is alive and well, ready to serve another generation. Updated and expanded by Phillips, this new edition will continue to be a close friend to the Pacific coast naturalist and a useful companion to the tidewater biologist.

Except for the final two chapters, the book remains quintessential Ricketts. His views and literary style have withstood both the slaughters of time and editing. As in earlier editions, the first ten chapters take us to the major coastal habitats, there to describe its residents and how they get along with themselves and their neighbors. The giant red urchin, the sea bat, the gumboot chiton, grunion, abalone, mole crabs, acorn barnacles, gribbles and two thousand or so more all take their turn on these pages.

New information abounds on hundreds of species. Where older editions didn't know or were not sure, this edition does know and is sure, reflecting the enormous gain in knowledge in the nearly two decades since the 4th edition. Shore foraging foxes gobble up whopping numbers of beach hoppers; Anthropleura spreads by cloning until it meets up with another of the same species but a different clone and a war zone forms between them; Tegula...well, read it for yourself.

Each subject has a reference number, a system started in the original publication, so that if you wish to find out what's new or different among editions, you merely refer to the entry number.

The latter chapters help unify the whole. "Intertidal Zonation" appeared in the 4th under the aegis of Joel Hedgpeth. "Intertidal Ecology" is the contribution of Phillips. Both chapters replace others with business that is more to the point.

The text has undergone some minor sanitizing. In past editions the depletion of S. franciscanus was laid at the doorstep of "appreciative Italians," now it's blamed on "appreciative gourmets." Total metrication also creates a few oddities: whereas in the past, on grunion nights, cars were parked bumper to bumper for many miles, it's now many kilometers.

At the price, or twice the price, it would be hard to find a better bargain. If you have an earlier edition supplant it with this one. If you live on the Pacific coast and have neither, where have you been? It's a must.

D. K. B. in UNDERWATER NATURALIST 16(1):32
Publication of the American Littoral Society

SHELLS OF THE PHILIPPINES

by F. J. Springsteen and F. M. Leobrera, published by Carfel Seashell Museum, Manila, Philippines, 1986. 377 pp., 100 color plates, several black and white photos, numerous drawings. Price: $80.00 plus mailing charge.

Many areas of the Indo-Pacific region have been relatively well covered in recent malacological literature. One area in particular - the Philippine archipelago - has received peripheral treatment. The very large number of specimens available since the advent of tangle nets has increased the need for a good guidebook to the marine mollusks of the Philippines. This long-awaited Carfel publication admirably provides a "state of the art" identification manual to the most commonly available shells of the Philippines.

Introductory and supplementary material consist of the following: foreword, preface; an introduction by Dr. Baldomero Olivera covering personal recollections of Philippine shell collecting; a section on the geography of the Philippines with a generalized map; a geological and biological history of these islands; a discussion of molluscan distribution patterns within the Philippines; acknowledgments; table of contents; a glossary of malacological terms; an extensive bibliography; a list of genera and subgenera arranged alphabetically within families, including plate numbers; and an index to species and families.

Nearly 1700 marine species are presented, comprised of approximately 1500 gastropods, 170 bivalves, 10 scaphopods, and 8 cephalopods. In addition, 4 plates with just over 100 species give a brief glimpse of the land and freshwater snails of the Philippines. The plates and accompanying descriptions account for 330 text pages. Class, subclass, order, superfamily, and family are given in the headings for each plate. A short diagnosis of the family precedes species discussions; species names include genus and subgenus, author and date of original description. Additional data are size and locality of figured specimens, a short paragraph of description, distribution within the Philippines and, where applicable, discussions of distinctions between similar species, and synonymies. Supplementary notes at the end of some families cover certain taxonomic problems.

This book is an excellent treatment of the larger and more readily available Philippine marine shells. Data presented is that available at the time of writing - the text was written and prepared for printing some time ago; three plates covering recently disseminated data have been added before the non-marine species. Unavoidable delays in publication have resulted in the most recently published information not being included, but the senior author is providing a listing of these taxonomic changes. The color plates are well done - color is good, but some species are illustrated at too small a size for easy identification. The text and plates are not presented in strict taxonomic arrangement, but careful use of the index and family listing will facilitate the use of this book.

Specialists in various groups may disagree on the taxonomy employed here, but such differences of opinion are inevitable. Also inevitable are several minor printing errors, but these are mercifully few in number. It is important to remember that those interested in Indo-Pacific, and especially Philippine, mollusks are likely to find the larger and more frequently seen marine mollusks discussed and illustrated in color. This volume is a tribute to the dedication and scholarship of the authors and many worldwide malacologists who have provided assistance in their special fields of study. This reviewer most highly recommends Shells of the Philippines and looks forward to the promised future volume on micro-mollusks and other species not treated in this current volume.

Walter E. Sage

COQUILLAGES DU GABON - SEASHELLS OF GABON

by Pierre A. Bernard. Published by the author, Libreville-Gabon, November 1984. 140 pages (text in French and English), 73 color plates, numerous black and white photos. Size 7 1/2 x 10 1/2, soft bound. Price: $44.00.

Guidebooks to the molluscan fauna of a particular geographic region have always been an important part of the literature. This new color-illustrated volume is a welcome addition to its predecessors (such as Adanson's 1757 work on the shells of Senegal), and with its color plates is certain to prove a most valuable reference. Though it is focused on the shells of Gabon, many of these mollusks have wider ranges and, in like manner, this book will have a much wider audience.

Beginning with a map of the Gabonese coast, which straddles the equator, a preface and acknowledgements precede the text which, written in both French and English, begins with a useful introduction discussing the areas from which mollusks were taken, methods of collecting, comments on classification and literature problems, and a statement of the contents of the book. It is clearly stated that 296 species are covered - 265 in color, and 31 in black and white. Additionally, four plates cover 15 species of micro-shells, greatly enlarged to show details of sculpture. Of the 296 species treated, there are 257 gastropods, 35 bivalves, 1 chiton, and 3 scaphopods.

The bulk of this volume is devoted to the brief descriptions of species and the plates. Scientific name, with author and date of description, is given for each species. Size of the species, an estimate of rarity, habitat and usual depth are provided. Geographic location on the Gabonese coast is often listed, as are synonyms where applicable. Beginning with gastropods, followed by bivalves, chiton, and scaphopods, each species is numbered and the illustration for that species can be found by locating the species number. This system proves a bit difficult in cases where the species are figured out of numerical and scientific sequence.

Color and black and white photos are generally excellent; some few are rather blurred. Identifications follow the most commonly accepted names, although several are identified only to genus and the author notes that much research on mollusks of Gabon remains to be completed. The latest determinations have been added in the last few plates. It is rewarding to see so few typographical or spelling errors; on plate 3, however, number 17 should be number 14 - Nerita senegalensis, and number 18 should be number 17 - Littorina cingulifera. The book ends with a list of unillustrated bivalves requiring further study, and an alphabetical index by family and genus - under each genus are alphabetized the species names, preceded by the identification number.

This book is a worthy example of the type of contribution which can be made by the dedicated student of mollusks. It covers an area in which recent discussion of the molluscan fauna is lacking, and does a fine job of making this fauna known to collectors and professionals. This is certainly a volume which can be highly recommended.

Walter E. Sage

A HISTORY OF SHELL COLLECTING

by S. Peter Dance. Published in 1986 by E. J. Brill of Holland and distributed in North America by the New England Division of American Malacologists, P.O. Box 1192, Burlington, MA 01803. 280 pp., 32 pl. (1 in color), text figures. Hardbound. $37.50 postpaid.

This new volume is described in the publisher's announcement as "a continuation of Peter Dance's well-known history of shell collecting," referring to his "Shell Collecting, An Illustrated History" which was published in 1966. We are happy to learn that this fascinating, informative and useful material is again available after an absence of almost 20 years.

dr

EDITOR'S NOTE:

The first report of the presence on Long Island of the Asiatic freshwater clam, Corbicula fluminea (Müller, 1774) = Corbicula manilensis (Philippi, 1841), appeared in New York Shell Club Notes No. 287.9-10, June 1983. Subsequent research resulted in the following detailed report that was published in the New York Fish and Game Journal of July 1984 31(2):224-226 (Division of Fish and Wildlife, Department of Environmental Conservation, State of New York).

* * *

A FURTHER RANGE EXTENSION OF THE ASIATIC CLAM[1]

Jack Foehrenbach Environmental Consultant
91 Elm Street, Islip, NY 11751

Dorothy Raeihle Editor, New York Shell Club Notes
211 Milligan Road, West Babylon, NY 11704

The first reported living colony of the Asiatic clam (Corbicula fluminea) in the United States was found in the Columbia River in Washington in 1938 (Burch, 1944). Since then, this clam has been reported by several authors to have spread to 35 states (New York was not one of them) and northern Mexico. The farthest dispersal in the Northeast was reported by Trama (1982) to be the freshwater reaches of the Raritan River in northern New Jersey. All these sightings were recently summarized by McMahon (1982) who believes that the species has reached its northern limit with temperature being the limiting factor. It has been described as one of the most costly molluscan introductions in recent times, causing much trouble in irrigation ditches, gravel operations, highway construction, etc. It has clogged the intake pipes of many water systems and caused failure of concrete in construction. The present paper reports on a thriving colony in a lake in Massapequa on Long Island (NY) about 9 miles north and 70 miles east of where the species was found in the Raritan River. The authors believe this to be the first report of the Asiatic clam from waters of New York State.

During February 1983, two biologists of the State Department of Environmental Conservation, while banding black ducks on Massapequa Lake, observed many bivalve shells along its shore. Since this is a freshwater lake, and not having found similar shells in like habitats, they brought their finding to the attention of the senior author. Having done much limnological work on Long Island without seeing such shells, he consulted with Dorothy Raeihle for identification and comment. After extensive search of the literature, they decided further investigation was needed.

---

[1] This work was begun while the senior author was employed by the New York State Department of Environmental Conservation. The authors wish to thank the Great South Bay Audubon Society for partial financial support to complete the project. They also extend their thanks to the following in the Department of Environmental Conservation: Michael Scheibel and Steven Sanford, the biologists who made the original observation; and William Hastbach, senior bacteriologist, and Paul Chevallier, food inspector, who provided useful data.

The authors visited Massapequa Lake and found that indeed it contained a viable population of Corbicula fluminea. Several year classes of living clams were present as evidenced by the size range (longest dimension) of 5 to 31 millimeters. Sampling was done to a depth of about 1 meter. Empty paired and single shells were very numerous, and 80 were collected at random and measured. Depending on what growth rate one uses (e.g., Buttner and Heidinger, 1980; O'Kane, 1976), some 85 per cent of the shells represented clams from 3 to 10 years old. These findings were reported at a spring meeting of the Long Island Shell Club and, to our surprise, a member and much respected shell collector (W. Kluth, personal communication) responded that he had found them in the lake since 1977. It appears then that Corbicula had been present in Massapequa Lake for several years.

Massapequa Lake is about 50 acres in surface area and has a sandy bottom overlaid with 5 millimeters of silt. It is fed from the north by another lake with a dam between the two. There is a fast-flowing stream from the dam to the lower lake. Investigation of the stream and upper lake revealed no shells in either. Both Sinclair and Isom (1963) in the Ohio River and Trama (1982) in the Raritan River found upstream migration. The dam undoubtedly acts as a barrier to the upper lake. Massapequa Lake discharges via a dam to tidal waters of varying salinity. Unfortunately, these waters were not accessible for sampling. Presumably, as there is a short planktonic stage in the life history of Corbicula, some larvae must be carried to these waters. Several other local lakes, some of which were only about half a mile east or west of Massapequa Lake, were then checked, but only two unattached valves were found in one (Bellmore) about 3 miles west of Massapequa Lake. All the other waters contained no shells.

One can only speculate as to how these clams were first introduced into Massapequa Lake and why they hadn't spread to nearby lakes. Much has been written about the mechanisms of dispersal of Corbicula. Ingram et al. (1964) suggested migrating birds; Abbott (1975), aquarists; Sickel (1973), fishermen; and Sinclair and Isom (1963), sand-mining operations. As Corbicula does have a short planktonic stage, downstream movement is an obvious means. But, of all these possibilities, only two seem plausible in the present case, I.E., aquarists and migrating waterfowl. However, Thompson and Sparks (1977) force-fed small Corbicula to lesser scaup ducks and found a 100 per cent mortality of the clams. The acidity in the birds' gizzards literally dissolved the valves. Massapequa Lake and surrounding lakes have a large year-around population of various waterbirds (Canada geese, mallard ducks, gulls, herons, egrets etc.). During the winter, these lakes also serve as resting areas for several additional species of migrating waterfowl. These birds are constantly moving from lake to lake, and the fact that the other lakes were apparently still free of Corbicula also invalidates the idea that waterfowl are carriers of this clam.

The authors suggest an additional mechanism. On June 6, 1980 a food inspector of the State Department of Environmental Conservation visited a shellfish dealer in Brooklyn (NY) to pick up a sample from a shipment of hard clams (Mercenaria mercenaria) from California in which a conservation officer had noted some that were below the legal size (i.e., a minimum thickness of 1 inch for Mercenaria in New York). It turned out that the clams were Corbicula. A company in California that sells these clams for bait was shipping them to New York to be used as a food product. This clam is considered a delicacy in China and Japan, and at least one Japanese restaurant had ordered them. The sampled clams had very high bacteria counts, and because of various health restrictions the shipments were stopped. Supposedly, the remainder of the original shipment were destroyed. However, it is not known how long these shipments had been taking place, and indeed if they have been totally stopped. There are several Chinese and Japanese restaurants within a few miles of Massapequa Lake, and clams from one of these could easily wind up in this or one of the other nearby lakes. If this has happened it would represent an introduction from a source 3,000 miles away.

Literature Cited:

Abbott, R. T. 1975. Beware the Asiatic freshwater clam. Tropical Fish Hobbyist 23:15.

Burch, J. Q. 1944. Check list of west North American marine mollusca from San Diego, Calif. to Alaska. Minutes Conchol. Club So. Calif. 38:11-18.

Buttner, J. K., and R. C. Heidinger. 1980. Seasonal variations in growth of the Asiatic clam, Corbicula fluminea (Bivalvia:Corbiculidae) in a southern Illinois fish pond. Nautilus 94(1):8-11.

Ingram, W. M., L. Keup, and C. Henderson. 1964. Asiatic clams at Parker, Arizona. Nautilus 77(4):121-125.

McMahon, R. F. 1982. The occurrence and spread of the introduced Asiatic freshwater clam, Corbicula fluminea (Müller), in North America. Nautilus 96(4):134-141.

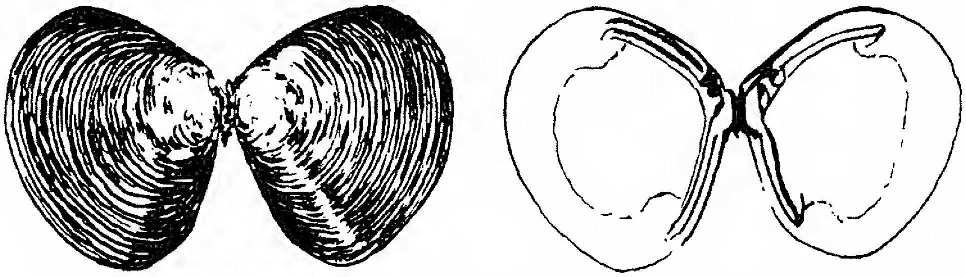
O'Kane, K. D. 1976. A population study of the exotic bivalve Corbicula manilensis (Philippi, 1841) in selected Texas reservoirs. M.S. thesis, Texas Christian Univ. Library.

Sickel, J. B. 1973. A new record of Corbicula manilensis (Philippi) in the southern Atlantic slope region of Georgia. Nautilus 87 (1):11-12.

Sinclair, R. W., and B. G. Isom. 1963. Further studies on the introduced Asiatic clam Corbicula in Tennessee. Tennessee Stream Pollution Control Bd.

Thompson, C. M., and R. E. Sparks. 1977. Improbability of dispersal of adult Asiatic clams, Corbicula manilensis, via the intestinal tract of migratory waterfowl. Am. Midl. Nat. 98:219-223.

Trama, F. B. 1982. Occurrence of the Asiatic clam Corbicula fluminea in the Raritan River, New Jersey. Nautilus 96(1):6-8.



Corbicula fluminea (Müller, 1774), actual size.

UPDATE ON CORBICULA IN LONG ISLAND WATERS

In the preceding report it was mentioned that two single valves of Corbicula fluminea had been found at Bellmore Lake (1984). As with Massapequa Lake, the waters of Bellmore Lake drain via culverts into brackish water thence to the bay. The "Greenbelt" in which Bellmore Lake is located includes the Wantagh Twin Lakes Nature Preserve, with connecting streams, and is approximately three miles west of the Massapequa Preserve where living Corbicula were first discovered.

In August 1986 Norman Trigoboff visited the Twin Lakes Preserve and found a large viable colony of Corbicula fluminea in the pond just to the north of Bellmont Lake, and sent us representative specimens. Very interesting also was his report that Anodonta and Viviparus were also present.

Now we have learned that a third area is apparently infested: The pond of Tackapausha Preserve, which is situated approximately midway between the Massapequa and Bellmore/Wantagh Twin Lakes Preserves. On October 22nd Walter Kluth explored the shores of the pond and found adult shells of Corbicula.

The waters of the three "greenbelts" of Massapequa, Tackapausha and Bellmore/Wantagh flow from north to south; we know of no east-west connecting flows. Theories as to their introduction are still loaded with questions.

Dorothy Raeihle

ON THE MENU

We are not aware of any recipes for our prolific Corbicula fluminea. However, if one feels adventurous, a lead might be taken from the following entries in Dr. Tadashige Habe's paper, "Edible Molluscs in Japan," (Proc. 2nd N. Pac. Aquaculture Symp. 1983, 415-453.):

> Corbicula japonica Prime, 1864. Japanese name: Yamato shijimi.
>
> This is a freshwater clam common in the brackish water area at the mouth of rivers and lagoons. Bean soup with this clam has a good taste. The clam is cooked as boiled flesh, so-called as Mukimi.
>
> Range: Hokkaido to Kyushu and Korea.
>
> Corbicula sandai Reinhardt, 1878. Japanese name: Seta shijimi.
>
> This species is endemic in the freshwater Lake Biwa, Siga Prefecture. Bean soup with this clam is also tasty.

OFF THE MENU

People caught digging for snails in the central Ghanaian town of Sarpeh will be fined a sheep and a bottle of the local alcoholic brew. The Daily Ghanian Times said Sarpeh officials outlawed snail-digging for food, because it ruined the land.

16 Jan. 1985, Liverpool Echo (Mrs. N. F. McMillan
in Conchologists' Newsletter 98:391, Sept. 1986.

OF MUSSELS AND BARNACLES

Recently there has been much publicity about the work (and hopes) of scientists who have succeeded in analyzing the chemical components of the secretions a mussel uses to form and attach its byssal threads by a flattened disk to piers, rocks, etc. Research was assisted by a grant from the National Institute of Dental Research to Dr. John Herbert Waite, biochemist of the University of Connecticut Health Center, who has studied mussels for 15 years.

All the reports relay the excitement of finally finding a "superglue" for use in dentistry, orthopedics - and in ship repairs - of a flexible material effective in a wet saline environment.

After 3 years and 3,000 mussels (Mytilus edulis), Dr. Waite and his associates at last identified the ingredients of the mussel's adhesive. Because millions of mussels would have to be tediously processed to get a natural product, Dr. Waite turned to DNA technology with the Genex Corporation. The mussel "glue" has been synthesized by Genex (and patented by Biopolymers, Inc.) and enough can be produced for experimental purposes. It is projected that in another two years the material - if it lives up to expectations - may begin to come into practical use.

Several years ago, equal excitement was created in the media when scientists were working to unlock the secret of the barnacle's adhesive. In "Wonders of Barnacles," 1974, Arnold Ross and William K. Emerson comment (p.13): "Scientists are presently trying to duplicate the cement secreted by barnacles. Barnacle adhesive can stick to almost anything, including glass, metal, concrete, and plastic, as well as natural objects. It is much stronger than any man-made adhesive. For this reason, it has been called 'Superglue.' Perhaps someday dentists may use barnacle cement to fix our teeth."

OF SEA WHIP AND SPONGES

Scientists of the University of California recently reported that the sea whip Pseudopterogorgia elisabethae, one of the gorgonian soft corals that live in warm waters, yields analgesic compounds that may play a role in the treatment of arthritis and other degenerative diseases. The compounds, called "pseudopterosins," are derived from the coral's defense system; the pain-killing properties were discovered while studying the noxious chemicals secreted by the sea whip to repel predators.

A major differences between pseudopterosins and other powerful pain killers is that the new compounds do not appear to be narcotic or addictive despite their powerful analgesic and anti-inflammatory properties. Projected time for full testing: up to ten years.

The Pseudopterogorgia elisabethae were collected in the central Bahama Islands. A technical report of the chemistry was published in Proceedings of the National Academy of Science USA, Vol. 83, pp. 6238-6240, September 1986.

A new substance, manoalide, has been isolated from a Pacific sponge. It is a non-steroid and it has been discovered to be an anti-inflammatory and analgesic agent. A pharmaceutical firm is pursuing development of the drug, and chemical trials are currently underway.

ELEUTHERA

Harriet Hough

Our shelling expedition to Eleuthera turned out to be an exploration of Harbour Island, slightly to the north of Eleuthera (Bahama Islands). Upon arrival we were told by several people that there are no shells on Harbour Island, and perhaps a nice fishing trip would be more fun. But how could I, the "Intrepid Treasurer" of the Jacksonville Shell Club, according to "Bonnie's Bubbles" in the Shell-O-Gram, be outdone by the mere incidence of habitat and/or tidal conditions? The hunt was on!

It took very little effort, however, to find that there really are very few shells, or even pieces of shells, on the ocean side of the island. This was true up and down the beach, with the exception of a few Zebra Nerites and Black Atlantic Planaxis on an outcropping of rocks. Our best treasure from this area was a bag of the sand - it really is pink - which we brought back.

Girls Bank on the north end of the island provided our best honey-holes, and we returned there on several occasions. The mud flats extended out a quarter of a mile at low tide and were very rich with live Common Atlantic Marginellas, False Ceriths, Ivory Ceriths, Pen Shells, and Livid Naticas, as well as occasional Warty Cones, Colorful Atlantic Naticas, Comb Bittersweets, Egg Cockles, Buttercup Lucines, Atlantic Grooved Macomas, and Prickly Cockles. Slightly further out in 10 to 18 feet of water were several exceptional Apple Murex. This species is slightly different there, larger with a deep yellow aperture and parietal shield and much showier fronds.

On several occasions we rented boats at the dock in Dunmore Town, the first capital of the Bahamas, and went across the sound to Long Point, at the tip of Eleuthera. There we found a profusion of Nerites, Rustic Rock Shells, Chestnut Latirus, two Magnum Cockles, several more Apple Murex, numerous Milk and Queen Conchs, Speckled Tellins, a beautiful Hawk-wing Conch, and a Partridge Tun. While snorkeling, we found an octopus lair which yielded a seemingly unending supply of Chestnut Turbans, Chestnut Latirus, a Smooth Tellin, and many other odds and ends; he was definitely a true gourmet. We marveled that each shell was in almost mint condition and we continue to wonder how an octopus is skilled at animal removal. Surely there is a lesson for all of us.

One of our biggest surprises came on Eleuthera when we visited a spot which is called "The Boiling Hole". It looks like a cross between the surface of the moon and a hardened lava bed. Its cliffs stretch 25 to 30 feet above the heavily churning water. It is more like a typical West Coast scene than the Bahamas. It was eerie, barren, and required great care in moving about. We all had to throw away the shoes we were wearing after climbing around on the sharp rocks. Amazingly, we found some interesting shells, including Yellow and Grey Cowries, Carrot, Warty and Mouse Cones, Janet's Turrids, Ornate Scallops, one Leaning Dwarf Triton, and one Bermuda Cone. These retained about half of their color and quality, and most were under rocks with land crabs in them. We were awestruck at the power of the storm which had cast them ashore.

On another day we drove south on Eleuthera and discovered some beautiful flats near Governor's Harbor Airport. There were hundreds of Milk Conchs and beached gorgonias dripping with Wing Oysters. Unfortunately, there is now on the flats a very good pair of prescription sunglasses as well. The best advice I can give you is to always take an extra pair along! I'm sure that there was more to be found but, being anxious to explore further, we moved along. Soon some nagging trouble in the car (which we had rented from Charleton) became a serious breakdown, and that was the end of our lovely expedition. Finally, after being pushed several miles to a service station and then hitching successive rides, we found our way back home at 8:00 that night.

But do go to these islands if you have the opportunity. I never knew that the Bahamas could be so beautiful. Rolling hills transform the usual drab terrain into a picturesque paradise, and Harbour Island looks very much like Bermuda with its quaint colorful homes. Life there is relaxed, friendly, and determinedly slow-paced. The two quotes we heard most often aptly reflected the laid-back atmosphere - "No Problem" and "It's a little thing". Happily, the islanders were all delightful and went out of their way to make us welcome. And that is certainly "no little thing" for an American traveling out of the country.

Reprinted from THE SHELL-O-GRAM 27(3):6,
May-June 1986. Jacksonville Shell Club, Inc.

For additional reports on Eleuthera, see: The Pink Sands of Eleuthera (with map and checklist) by Dorothy Jensen, NYSC NOTES No. 108, pages 6-9, January 1965, and From Eleutheran Waters, by Dorothy Jensen, NYSC NOTES No. 121, page 4, April 1966. —ed.

OF LONG ISLAND'S SCALLOP INDUSTRY

After two consecutive summers of the "brown algae bloom," the scallop beds of eastern Long Island waters were almost wiped out. The opening days of this 1986 season were dismal. No scallops. The baymen left their boats ashore.

But at the same time a reseeding project is underway with the first shipment of the spat of *Argopecten irradians*, 800,000 tiny scallops airlifted from the Mook Sea Farm, a nursery on the Damariscotta River , Maine, to pens in Lake Montauk. A second project concerns the distribution of about 1.6 million young scallops between Northwest Harbor, Orient Harbor, and Flanders Bay.

Christopher F. Smith, a specialist with the Suffolk County Sea Grant program, projects that "If the restoration programs are successful, they will produce a bumper crop of baby scallops next year that will be ready for harvest in 1988."

Most of the scallops being seeded across Long Island this fall come from coastal New England stocks. They are expected to do well — if the phenomenon of the algae bloom does not reappear — because similar transplant efforts in other areas have been successful.

Adapted from an article by Thomas J. Knudson
In the New York Times of September 16, 1986

See also: The Puzzling Life of the Bay Scallop, NYSC NOTES No. 299, page 6; Researchers Probe Bay Scallops, NYSC NOTES No. 299, page 7.

WAKE ISLAND SHELLING

Edward A. Dunlap, M.D.

Wake Island - an isolated coral atoll in the mid-Pacific 2,300 miles west of Honolulu - is a quiet place these days. Its current use is almost solely as a refueling base for U.S. military planes. It was the site of the historic confrontation between Harry Truman and Douglas MacArthur.

Wake is off limits to commercial aircraft except for emergencies and visitors are not permitted, with an occasional exception such as the 1985 visit of some 150 "Wake Island Defenders" and their families on the 40th anniversary of the retaking of the island near the end of the war. Island personnel these days number slightly over 200 civilian and military individuals and a large work force of Filipinos.

Wake Island is actually made up of three islands - Wilkes, Peale and Wake - connected by a bridge and causeway. They form a U-shaped unit approximately 14 miles from end to end and enclose a large lagoon with a reef-guarded entrance two miles wide.

A recent assignment there of four weeks allowed an update on previous visits in 1981 and 1982. The shores of Wake range from wide sand beaches to rough, jagged shoreline coral. Wave action ranges from mild to heavy. Reef width to drop-off ranges from a hundred yards or so to over a mile and its composition runs from wide, flat coral sheets with few pockets, to coral rubble, to sand, with or without small coral heads. The lagoon is quite wide and wholly sand-bottomed with occasional small coral outcrops. Its harvest is almost exclusively Cerithium and Tridacna. I have never found Olividae there.

Shelling was different this time around. A wide variety exists. The new Burgess indicates by his maps 32 cowries to be there but on a visit in 1971 he found only 13 species (personal communication) and on my three trips I have found only 16 species, either live or beach. The island's relatively close proximity to the Marshalls suggests the additional score of shells there to have a potential range extension to Wake.

Interest on Wake in shelling is practically non-existent though one Filipino does some collecting (unfortunately taking the immature shells along with the mature). SCUBA diving is currently done by a handful of military, plus a few transients, none of whom shell seriously, although currently they are taking large specimens of Lambis lambis at depths of 30 to 55 feet. Most of their diving is to hunt lobsters and explore old wreck sites.

My activity is perforce confined to snorkelling. The big surf at reef edge is heavy to the point of awesome, so I did not venture into it and this severely limited my collecting. Furthermore, my interest lies largely with cowries and cones so I did little collecting for variety other than for the American Museum of Natural History at the request of Walter Sage. Many of the shells I cannot identify (that will be his problem!) so cannot list them. I have collected, live or beach, the following:

Cowries: caputserpentis, carneola, depressa, erosa, helvola, scurra, ventriculus, vitellus, isabella, lynx, maculifera, moneta, poraria, schilderorum.

Cones: auricomus, catus, canonicus, circumcisus, chaldeus, coronatus, mappa, mauritiana, ebraeus, moneta, flavidus, geographus, imperialis, miles, lividus, leopardus, pulicarius, sponsalis, ratus, striatus, obscurus, tessulatus, textile, and miliaris.

Miscellaneous: Turbo argyrostoma, Casmaria erinaceus, Nassa serta, Cymatium pileare, Latirus nodus, Morula uva, Nassarius papillosus, and about 20 more I cannot identify.

By and large, shelling on Wake is both rewarding and enjoyable. There is a real need for a few knowledgeable divers and other shellers to make an organized and detailed study of what exists there.

Reprinted from the Newsletter of the National
Capital Shell Club, No. 84, p. 10, Spring 1986

REVIEW:

The New EDIBLE? INCREDIBLE!

by Virginia Pill and Marjorie Furlong. 73 pp. with 45 color illustrations. Pill Enterprises, Shelton, Washington. Price: $7.95 plus $1.50 postage.

Hood Canal is a mountain-shadowed arm of Puget Sound, in the extreme northwestern corner of the United States. It shares with Puget Sound proper and the adjacent protected waters of coastal British Columbia a wealth of marine life. Appropriately, the Native American tribes of the area were known, a bit superciliously, as "clam-digger Indians".

Long-time residents of Hood Canal, Ms. Pill and Ms. Furlong have brought together dozens of recipes for utilizing this storehouse of food. More than that, they have furnished us with a concise rundown of the edible species, with color shots of live shells, octopus, seaweeds, kelp, sea urchins, barnacles, and some other fauna this reviewer had never thought of sampling.

The result is a different kind of cookbook, going beyond the usual series of recipes to talk entertainingly about the raw material and its habitat.

Although talking specifically about products of Puget Sound, The New EDIBLE? INCREDIBLE! is pertinent to the entire Pacific and Atlantic coastlines of North America, and presumably other temperate waters around the world.

S. L. in Hawaiian Shell News 34(6), June 1986
Reprinted in The Thatcheria 21(8), Nov. 1986.

FROM THE OFFICERS

We appreciate the prompt response of the many New York Shell Club members who have now paid their 1986-87 dues. Many, many thanks.

For those who have not yet taken care of this matter, would you give it your prompt attention, please?

DATES TO MARK ON YOUR NEW CALENDAR (also page 5)

February 20 - 22, 1987. Sarasota Shell Club's Shell Show.

The following is from an editorial in the New York Daily News of November 17th. See the article in NOTES No. 300, page 21.

SAVE THIS SNAIL!

For the last seven months, a very large snail has been living on a traffic island in Manhattan. Down where 23rd Street, Broadway and Fifth Avenue intersect. (Photo in NOTES No. 300, page 21.)

The snail is quite happy there. And people are happy with the snail. In fact, they love him. Passersby stop to pet him. Children stop to talk to him. Children, and adults, ride on his back. And though he's out at all hours — steadfastly tugging an ear of corn and two black ants — no one has ever hurt him. Or the corn. Or the ants.

But all that doesn't matter to Community Board 5. They've just voted to evict him. By November 30, he must leave. Scram. Skidoo.

The snail (call him Shelldon) is a three-foot high sculpture. He and the ear of corn and the ants (officially titled "Social Progress") were created for the site by artist Christy Rupp. CB5 approved placement for six months. They gave a month's extension. That time is up. No more reprieves. They fear it would set a precedent.

DAILY
MADISON SQ. SNAIL STATUE TO GO?

But Shelldon deserves precedence. He is unique in his ability to delight. For many who have come to love him, he is a symbol of determination. And struggles-against-the-odds. And of sheer optimism. Maybe the children who love him miss the metaphor, but they damn well will also miss the snail.

Rupp has no animosity toward the board. She's grateful the snail was approved in the first place. Before last week's vote, she said, "Whether it goes or it stays, I'm just proud I've done something positive."

Rupp's wonderful, whimsical creation has done something positive, not just for kids, but for this city. Shelldon belongs right where he is. Right in its heart.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD P. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

EDNA M.CHRISTENSEN
68-45 Harrow St.
Forest Hills, N.Y. 11375
718-261-7089

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, NANCY P. McTIERNAN

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC, Items and articles for publication in the NOTES should be sent to the Editor.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB ANNUAL SOCIAL AND AUCTION

DATE: SUNDAY APRIL 12, 1987

TIME: Action will begin at 2:00 p.m.

Doors will open at 1:00 p.m. so that donations and supplies may be brought in and set up.

PLACE: BROADWAY DANCE STUDIO (directions below)
31-08 Broadway
Astoria, Queens, N.Y. (phone 274-1503)

DONATION AT THE DOOR: $2.00 per person for members and guests

MAJOR ACTIVITY - AUCTION ! !

also

BARGAIN TABLE - RAFFLE - DOOR PRIZE(S)

wine + cheese + snacks + punch + munchies + coffee

WE NEED OUR MEMBERS' HELP

Donations are needed for the auction, bargain table, raffle, door prizes and the refreshment table. Remember, your surplus shells, or those you are no longer much interested in may be a great 'find' for another collector. And not just shells -- any shell-related item (literature, etc.) and shelling aid (look-box, screen, etc.) will be welcome.

THE AUCTION

Marty Gill will be our auctioneer again, and we are very pleased to have him! New York area members will receive additional information about the auction in early April. Donations of shells, etc. may be brought to the March meeting, and offers of help gladly accepted.

Again, we thank Dorothy Jensen for donating the use of her studio.

DIRECTIONS: --

The studio is on the second floor of the building, S.W. corner of Broadway and 31st Street. From Manhattan: B.M.T. ASTORIA line to BROADWAY, or I.R.T. FLUSHING line to QUEENSBORO PLAZA and transfer to the B.M.T. ASTORIA line then e to BROADWAY. Travelling from Jamaica: I.N.D. to ROOSEVELT AVE., transfer to I.R.T. FLUSHING line to QUEENSBORO PLAZA, transfer again to B.M.T. ASTORIA train.

BY CAR: QUEENSBRO BRIDGE to NORTHERN BOULEVARD to 31st Street, left on 31st Street (under the Elevated) to BROADWAY. Also, TRIBORO BRIDGE to the first exit in Queens, turn right under the Elevated along 31st Street to BROADWAY. From LONG ISLAND: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along ASTORIA BOULEVARD to 31st Street, TURN LEFT under the Elevated to BROADWAY -- about six blocks.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History, except in April when our annual social and auction is held on other premises.

MARCH 8, 1987, at 2:00 p.m. American Museum of Natural History

A program on the Shells of West Mexico,
by Avis Soga.

APRIL 12, 1987. OUR ANNUAL SOCIAL AND SHELL AUCTION.

SEE ENCLOSURE FOR DETAILS. Y'ALL COME!

MAY 10, 1987, at 2:00 p.m. American Museum of Natural History

A program on the Shells of Hawaii,
by Marty Gill.

On meeting days at the American Museum our meeting room will be open at 1:30 p.m. giving us an informal half hour for visiting, shell identification, discussion etc.

CONTENTS

		Page
Highlights of the November Meeting	Milton Werner	2
Highlights of the December Meeting	Milton Werner	2
Highlights of the January Meeting	Milton Werner	2
Shorewalkers of New York	The Shore Walker	3
Save Our Snails	Alan Solem, A. Jeffs	4
Placostylus (in Shells of New Zealand)	A. W. B. Powell	5
Schedule of Shell Shows		6
Schedule of Meetings		7
REVIEWS:		
A History of Shell Collecting, by S. Peter Dance.	Walter E. Sage	7
Atlas of the Living Olive Shells of the World, by Petuch & Sargent	Walter E. Sage	8
New addresses for The Nautilus		9
REVIEWS:		
The Oyster, by Robert A. Hedeen	Chiles T. A. Larson	10
Crabs of Cape Cod, by Stephen Berrick	Walter E. Sage	11
Cruelty to a Snail (Art)	Daily News Editorial	11
Immigrant Mussel Settles in Generator (*Mytella charruana*) (excerpts)	Harry G. Lee	12
What's in a Name? (Alvin)	Larry L. Booda	13
The Limpets	Lynn Scheu	13
The Common Name is Abalone	From Wire Services	15
The World of Marine Micromollusks	James H. McLean	16
There's No Accounting for Tastes	Larry L. Booda	18
Wherefrom a Cameo?	IOF Sea Secrets	18
New York Shell Club Membership		19

HIGHLIGHTS OF THE NOVEMBER MEETING

The speaker was Theta Lourbacos, whose slide presentation, titled "Traveling and Shelling in Alaska," described her July 1986 visit there. Her scenic photos covered jaunts by car, rail and ferry from Anchorage to Valdez, and by car from Valdez north to Denali National Park. Excellent weather helped to produce fine pictures of mountains, valleys, glaciers, etc. Another trip, to Glacier Bay, brought the opportunity to photograph the calving of ice floes from glaciers. During a half hour between ferry and bus Theta collected a sampling of shells from the shore of Bartlett Cove. She also displayed specimens found at the Gustavus ferry landing area.

A second program item was the showing of "Shelling Around Australia" - slides with narration. From a starting point in northwest Australia, the movement was southward, with "stops" at cities that included Perth, Melbourne and Sydney. The cities, their shores, beaches and selections of shells were shown. The Great Barrier Reef was also covered.

The door prizes were Chlamys delicatula, won by Mary Anne Bastek, and Chlamys nobilis, won by Dr. Walter Jacobs.

Milton Werner, Recording Secretary
(From notes made by Theta Lourbacos)

HIGHLIGHTS OF THE DECEMBER MEETING

The program was Jean Cates' slide show, with narration, on the life and work of Lovell Augustus Reeve, 1814-1865. He was considered to be an amateur conchologist, possibly because he was apprenticed to a grocer. After buying a handful of cowries from a sailor he became deeply interested in shells, and eventually in the systematization of conchology. His first publication was "Conchologia Iconica." It was followed by "Conchologia Systematica" in two volumes in 1840-41. Slides showed title pages, illustrations of shells, and descriptions. His illustrations of shells were beautiful as well as accurate, done from specimens borrowed from major collections. He was also a dealer, and was known to have had two specimens of Conus gloriamaris. Between 1846 and 1860 he published two volumes of "Elements of Conchology."

A display of shells from the Museum's collection was a sampling of species associated with Reeves' career.

Nick Katsaras described an article that appeared in the December 1986 issue of National Wildlife, which showed a large collection of bird's eggs.

The door prizes were Conus virgatus, won by Dr. Walter Jacobs; Conus subviridis, won by Al Scarpetti, and Astraea pileola (? - ed) won by Florence Fearington. All these species were described by Reeve.

Milton Werner, Recording Secretary
(From notes made by Theta Lourbacos)

HIGHLIGHTS OF THE JANUARY MEETING

The secretary drew attention to a Christmas card from Tillie Weingartner, with greetings to all members. President Ed Cowles noted that The Staten Island Institute of Arts and Sciences, where Tillie has been a staff member for many years, will help her celebrate her 80th birthday by honoring her with a reception to be held on February 7th. Theta Lourbacos added that Club members have been invited. It was decided that a group would be formed.

Ed mentioned the April social meeting and auction, and said that suggestions for a program would be welcome. Al Scarpetti suggested that we ask someone to do a slide show, mentioning Russ Jensen.

Ed also noted that Dr. Alan Solem, of the Field Museum, Chicago, is requesting contributions to an organization called "Save Our Snails," which is dedicated to protecting endangered species. Its major concern at present is the New Zealand Flax Snail. It was moved that the Club donate $25, and the motion carried.

Nancy McTiernan reported that in her efforts to recruit members she has been in touch with schools and outdoor and nature clubs in the area. Shorewalkers club, in turn, sent a schedule of events for any who might want to join in them.

The speaker was Richard Kelly, of the Long Island Shell Club. He reported on a 12-day trip to Nova Scotia in July 1985, showing slide photos of many of the 45 species he collected. Much of what he gathered came from stored lobster traps, which the lobstermen don't bother to clean out. Unfortunately, these specimens tend to be overripe, so the easy collecting results in smelly hands. Richard and his family made a swing around the southern end of Nova Scotia, starting at Halifax. Although they saw little sun and much rain, he managed to get some photos of flowers and scenery. Pictures of beaches showed them deserted. The water is so cold that even July doesn't bring out swimmers.

Ed asked that members bring shells to display or to be identified to the February meeting.

The door prizes were Conus retifer, won by Irving Hoppenwasser, Thatcheria mirabilis, won by Rose Kurss, and two Xenophora tenuis, won by Milton Werner!!!!!

Milton Werner, Recording Secretary

SHOREWALKERS OF NEW YORK

is a non-profit hiking group founded in 1982. Their long-term dream project: "To link together the Hudson River Shore Trail - a 300-mile green walkway stretching from the mouth of the river at South Ferry and the Statue of Liberty to Lake Tear of the Clouds, the highest source of the river. ... (to date) we have scouted over two-thirds of the trail. ... In late November the 15-man Presidential Commission on the Outdoors recommended 'greenways' bordering waterways be built to protect land for public use. The Times reports that these proposals were 'violently opposed by Administration representatives' ... No one said building the Hudson River Shore Trail would be easy, but we walkers have millions of allies - if we get the message to them."

Meanwhile shorter, local walks are scheduled weekly through mid-May: "Exploring the City Around its Edges."

Inquire of: Cy A. Adler, President of Shorewalkers, 241 West 97th Street, New York, New York 10025. (There is also a chapter in Albany, New York.)

Field Museum of Natural History
Chicago, Illinois 60605-2496

To the President
New York Shell Club Inc.

Dear President:

The attached information concerns a rather unique and worthwhile project that should be called to the attention of your members. The New Zealand Flax Snails are a unique biological resource, and if we cannot succeed in conservation within a liberal and enlightened country such as New Zealand, we probably cannot anywhere.

Hence I would appreciate your calling this project to the attention of your members, and urge your support for their activities.

Thank you very much for your cooperation.

Sincerely,

Alan Solem

Alan Solem, Curator and Head
Division of Invertebrates
Department of Zoology

* * *

SAVE OUR SNAILS

With only 200 animals left alive the Far Northern Flax Snail, Placostylus ambagiosus is close to extinction. These snails live in small patches of native vegetation around the coast of the northern tip of New Zealand.

Flax snails hide in thick, moist leaf litter during the day and emerge at night to feed upon freshly fallen leaves. As a land dwelling snail the flax snail has developed a large heavy shell which serves to protect the animal (70mm long). Their shells have a rich red-brown exterior and pink-orange interior; the snail itself is smoke gray with very wrinkled skin. Their large size and longevity (12-18 years) are the keys to the survival of the species. The pool of large adult snails in a population is capable of surviving long dry summers while still continuing to lay eggs.

Placostylus snails are hermaphroditic, i.e. possess both female and male sex organs, and are also believed to be capable of either self fertilisation or sperm storage for up to three years. These are all adaptations to ensure that breeding continues even though the number of mating encounters between snails may be low. This may be due to a small population size and the short distances snails travel in the space of a year (2-3 meters).

The breeding season lasts for a short period during the summer months. The eggs are limey shelled and are about pea size. They are laid in clutches of 10-70 eggs and are buried in loose soil under thick leaf litter. The eggs hatch directly into juvenile snails.

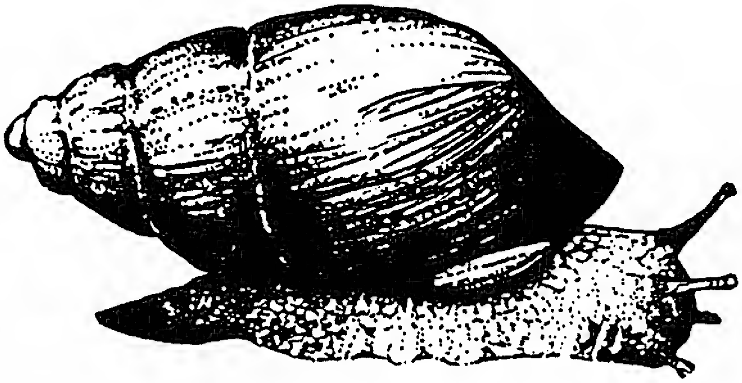
Natural predators are few but introduced animals, namely pigs, rats, mice, thrushes and blackbirds are today largely responsible for the decline in snail numbers. The clearing of coastal bush for farmland and the introduction of cattle has severely reduced areas suitable for snail habitation.

The long-term survival of this fascinating animal relies heavily on implementing conservation measures now, before snail numbers slip further downhill. Conservation could easily be accomplished by planting trees, controlling predators and fencing out stock from the snail colonies. This would cost relatively little compared to most conservation projects.

You can help save these snails from extinction by buying a "Save Our Snails" sticker. Proceeds from the sale of stickers will go towards replanting and fencing areas where the snails live. In the past stock have eaten the natural vegetation; the shortage of food plants is now limiting snail numbers. Hopefully supplementary plantings will help save these animals from extinction.

For further information contact:

Mr. A. Jeffs
Save Our Snails Society
c/o Zoology Department
University of Auckland
Private Bag
Auckland
New Zealand



Placostylus ambagiosus

[The following chapter on the genus Placostylus is found in the 4th edition (1961) of SHELLS OF NEW ZEALAND, by A. W. B. Powell of the Auckland Museum. Note that even 25 years ago these snails were becoming threatened with endangerment, if not extinction. — Ed.]

PLACOSTYLUS

If we trace the present distribution of Placostylus, a large turreted snail up to 4 inches in length, we find twenty New Zealand forms, all restricted to north of Auckland, while outside New Zealand related species occur on the Melanesian Islands northwards to the Solomons and eastward as far as Fiji.

The vast area of distribution of these snails coincides exactly with the now submerged "Melanesian Plateau", a complex system of connecting land which at a moderate depth unites with the North Auckland Peninsula all the Melanesian islands in which these snails occur. Deep water in the Tasman Sea separates this former landmass from Present Australia, where no snails of this type occur.

The shell of Placostylus is tall, cylindrical, up to four inches in height, and most of them are coloured rich, reddish brown, with an orange-red interior. The best-known species is the flax snail, Placostylus hongii, Pupuharakeke of the Maoris, and this is restricted to the coastal areas north of Whangarei and the Poor Knights.

It is a vegetarian feeder and is quite easily kept in captivity. Some years ago I kept a number for about eighteen months, feeding them regularly on karaka leaves. *Placostylus* makes a small nest as a depression in the ground under leaf mould, and the eggs are about a quarter of an inch long. Our largest and finest species, *Placostylus bollonsi*, is found at Great Island, Three Kings Islands, but, unfortunately, it is now almost extinct due to former overrunning of the island by wild goats.

Unfortunately, on the mainland also, the Pupuharakeke is fast declining, due to the ravages of pigs, which consume great numbers of these snails. Until a few years ago there was a flourishing colony of *P. hongii* on a headland near Mimiwhangata, south of Helena Bay, but owing to the unfortunate liberation there of a herd of domestic pigs, inside three months this interesting colony of some thousands of snails was entirely wiped out. Being coastal in distribution, the Pupuharakeke has now almost disappeared from the mainland, but, fortunately, it still flourishes at some of the islands of the Poor Knights group. So numerous are they at these islands that one encounters them almost at every step.

The happy hunting ground for *Placostylus* is undoubtedly the far northern Cape Maria van Diemen-North Cape block. Here sixteen subspecies occur including six known only as subfossils, since they are ancestral to the living ones.

At some localities the latter are to be found at any time in thousands as bleached but well preserved shells scattered on the coastal sand dunes. These tell an interesting story of former forested conditions where now only drifting sand prevails. The differentiation into subspecies was the result of former isolation on islands that are now linked with the mainland.

A. W. B. Powell in SHELLS OF
NEW ZEALAND (1961) pp. 47-48.

SHELL SHOWS

March 5 - 8	Sanibel Shell Fair	Ralph Moore 1214 Gulf Drive, Apt. E2 Sanibel, Florida 33957
March 10-12	Marco Island Shell Show	Evelyn & Malcolm Currier 809 Dandelion Court Marco Island, Florida 33937
March 13-15	Central Florida Club's SHELLARAMA 87 at Sea World, Orlando	Dave & Lucille Green 5853 Pitch Pine Drive Orlando, Florida 32819
March 27-28	Greater Georgia Shell Show at Atlanta	
April 24-26	Cincinnati Shell Show	Louis Nizny 3853 Rose Hill Avenue Cincinnati, Ohio 45229
July 30 - Aug. 2	Jacksonville Shell Show at Jacksonville Beach, Florida	
Sept. 19-20	Crown Point Study Group	Box 462, Crown Point, Indiana 46307

MEETINGS

April 29 - May 1	Aquaculture Association of Canada at Quebec City. For information, contact Paul-Emile Lafleur, Ministry of Agriculture, Fisheries, and Food, 96 Montee Sandy-Beach CP 1070, Gaspe, Quebec G0C 1R0, Canada.
June 2 - 5	Aquaculture Europe '87, international conference and exhibition at the RAI Conference Center in Amsterdam, The Netherlands. For information, contact the European Aquaculture Society, Prinses Elisabethlaan 69, B- 8401 Bredene, Belgium.
June 21 - 25	Western Society of Malacologists, on the campus of San Diego State University. Contact: Carole M. Hertz, Department of Marine Invertebrates, San Diego Natural History Museum, P.O. Box 1390, San Diego, California 92112
June 23 - 27	Conchologists of America at St. Louis, Missouri. Headquarters: Day's Inn Hotel at the Arch. Convention Co-Chairman: Alan G. Gettleman, 4045 Central Lane, Granite City, Illinois 62040, phone: (618) 931-7374 evenings or weekends.
July 19 - 23	American Malacological Union at the Casa Marina Resort, Key West, Florida. Contact: President William G. Lyons, 4227 Porpoise Drive S.E., St. Petersburg, Florida 33705.
August 9 - 13	National Shellfisheries Association, 79th Annual Meeting to be held in Halifax, Nova Scotia. For information, contact: Brian Muise, Chairman, NSA Convention Coordinating Committee, P.O. Box 2223, Halifax, N.S. B3J 3C4, Canada.
August 19 - 21	Hofstra University Conference. An international conference on "Shellfishing and Coastal Resource Management: A Global Perspective." Contact: Dr. Terry Baker, Associate Dean, School of Education, Hofstra University, Hempstead, NY 11550. Telephone: (516) 560-5742.

REVIEWS:

A HISTORY OF SHELL COLLECTING

by S. Peter Dance. 1986. 265 + xv pp., 33 plates (1 in color). 17 text figures. E. J. Brill, Holland. $39.50. Available from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

The 1966 first edition of this book has rightly been considered a classic of the history of conchology. This new edition will introduce a new contingent of readers to this interesting facet of their hobby.

Eight chapters — Origins, Curiosities, Conchology Comes of Age, The Linnaean Era, The Lamarckian Era, The Cumingian Era, Explorations and Publications, and The Golden Age and Beyond — lead the reader from the earliest uses of shells to the beginning of the twentieth century. As is suggested by the chapter headings, the focus of this history is on European conchology, with brief mention of the United States and other non-European nations. A wealth of information is presented on the people, explorations, and publications so closely connected with shell collecting over the centuries. The plates help the reader to better visualize the flavor of the periods discussed in the text.

The 1986 text is, as the author states, "substantially identical to the first edition," with some rearranging and enlarging, and a small amount of new data. New acknowledgements and a new preface have been added, and the plates are largely new to this edition. The section on famous rare shells in the first edition has been deleted. Appendices I and II, shell cabinets of the eighteenth century and an account of a 1948 shell book auction, respectively, are new to this edition. Appendix III, on the use of the term conchology vs. malacology, is reprinted from the 1966 edition. Appendix IV, a listing of the present locations of historic shell collections, has been increased by 23 citations. The bibliography has been revised, with 37 references deleted and 60 added.

As a fascinating account, and as a vital reference to people, events, and dates, this book is recommended for a conchological library. This reviewer was looking for a truly new edition, with additional data on twentieth century conchology and more coverage of shells and shell collecting in the United States. The price of this new volume seems quite high for a reprinting of the 1966 text. It remains for this author or other researchers to continue this history to contemporary people, places, events, and publications.

Walter E. Sage

ATLAS OF THE LIVING OLIVE SHELLS OF THE WORLD

by Edward J. Petuch and Dennis M. Sargent. 253 + xiii pp., 39 color plates, 37 black and white figures and maps, 5 tables. Coastal Education and Research Foundation (CERF), Charlottesville, Virginia. Price: $68.50 plus $2.50 postage.

In this systematic review of the genus Oliva, the authors recognize 144 species, 32 subspecies, and numerous named and unnamed color forms for a total of over 300 "recognizable" taxa in this popular group of the marine gastropod family Olividae. Ten subgenera, 28 species, and 18 subspecies are described as new to science, and replacement names are given to three preoccupied species-level taxa. It is important to state at the outset of this review that this book discusses only the shells of these mollusks and that no anatomical data are presented.

The book begins with listings of contents and illustrations, and a paragraph of acknowledgements. The text consists of eight chapters, followed by the color plates and plate captions, a glossary, brief bibliography, and systematic index. Chapter 1 (introduction) gives the basis for the authors' research, stating that shell morphology and geographical distribution are the important criteria in olivid systematics, and concluding that "By combining zoogeographic patterns (see Chapter 6) with aspects of shell form and color, unknown olives may be classified at the subgenus and species level."

Chapter 2 elaborates on these morphological characteristics — shell shape, shell size, spire height, protoconch, aperture width, columellar plications, color pattern, and shell color. Chapters 3 and 4, respectively, discuss the fossil record and ecology of the genus. Chapter 5 covers the position of Oliva in the systematic arrangement of the family Olividae. Chapter 6 covers the zoogeographic regions recognized by the authors, and Table 3, in conjunction with Figures 1 to 32, gives the zoogeographical distribution of each species and subspecies.

Chapter 7 provides listings of the new taxa described in Chapter 8, and explains the format of the systematic section. Also included here is Table 5, which "shows the relative abundance or availability of each species and subspecies, arranged by genus." Chapter 8 is the systematic treatment, which ranges from a single sentence for some color forms to several paragraphs for some of the new species. Nineteen subgenera are recognized, but diagnosis is provided only for the 10 subgenera that are proposed as new. (Figure B gives outlines of the shapes of all 19 subgenera.) Genus, subgenus, author, date of publication, description, discussion, and size are given for each species and subspecies. For each new species-level taxon, details of holotype, etymology, and brief comparison is made to related taxa.

This book is the first modern attempt to provide a revision of the genus Oliva. For several reasons, this book does not live up to its potential. First, there is no information about the olive animal — the conclusions of the authors would have been on more firm ground if anatomical data supported their morphological and zoogeographical analysis. Very little comparison is made between species and subspecies placed in the same subgeneric grouping. There is no mention or illustration of any type material, save that of the new taxa introduced here.

This book is very hard to use, as the reader must continually flip back and forth between text, plates, plate captions, and index in trying to compare species descriptions or to compare specimens with the text. The plates are small and the color rather poor, making the morphological characteristics very hard to discern. There are a large number of spelling and typographical errors, as well as incorrect citations in the index.

For all its flaws, this is a book that will be used by collectors and malacologists, as there is a wealth of information here. The description of new taxa alone will ensure this book a place in every comprehensive conchological library. This volume provides a base from which much additional study can be undertaken.

Walter E. Sage

THE NAUTILUS

The January 1987 issue of THE NAUTILUS — No. 1 of Volume 101 — ushers in the second century of its publication and celebrates with a new cover design depicting a living Nautilus. Although Dr. R. Tucker Abbott has retired as Editor-in-Chief, he continues to give of his expertise as Associate Editor.

New addresses: THE NAUTILUS, P.O. Box 3430, Silver Spring, Maryland 20901; M. G. Harasewych, Editor, Division of Mollusks, NHB 118, Smithsonian Institution, Washington, D.C. 20560.

THE OYSTER:
The Life and Love of the Celebrated Bivalve

by Robert A. Hedeen. Tidewater Publishers. 237 pp. Price: $16.95.

The mystique of the oyster goes beyond our taste buds. Prying open this book's shell offers fascinating, often amusing, but always instructive reading. Perhaps because author Robert A. Hedeen is both scholar — professor of biology at Salisbury State College in Maryland — and part-time waterman, he is able to blend the scientific aspects of _Crassostrea virginica_ with its colorful history.

There is scarcely a question the reader might imagine that is not addressed. Sampling: "How do oysters reproduce?" I am still not quite sure after learning that an oyster is capable of functioning as a male at one time during its life and a female at another. To those with a stronger biological bent, it will certainly be clear enough.

Have you ever wondered what the record is for downing the most oysters in the least amount of time? Would you believe this distinction belongs to Tommy "Muskrat" Greene of Deal, Maryland, for polishing off 288 Oysters — weighing a total of six pounds — in a minute and 33 seconds back in July 1985!

When Professor Hedeen discusses diseases, parasites and predators of the oyster, one would have to agree that it is nothing short of a miracle that even one oyster could survive during the course of its precarious existance because "it constantly runs the risk of being smothered, crushed, eaten, castrated, drilled, excavated, choked, infected, or dislodged."

Consider just one predator, the starfish. Once next to the oyster, it drapes its tube-foot-laden arms around the shell and begins applying suction. The oyster is able to resist at first, but the starfish eventually wins this deadly game of arm wrestling. After producing a slight gap between the valves, the starfish inserts its stomach into the shell and begins digesting the poor oyster.

Here the author displays his humanity by saying he has no scientific proof, but earnestly hopes at least some of the time a few oysters are able to regain enough strength to slam shut their valves and lunch on the starfish's stomach.

Amidst the problems of pollution, overfishing, ineffectual conservation measures and political shortfalls, Professor Hedeen finds one bright ray of light, the private propagation of the oyster.

He devotes a chapter to the efforts of the dauntless Max Chambers, who has succeeded where others have tried and failed in establishing an oyster hatchery. Chambers, without government help, has successfully spawned and reared oysters in his hatchery on the Naticoke River on Maryland's Eastern Shore.

The author is concerned that instead of doing everything possible to encourage the private propagation of oysters, Maryland seems to do everything possible to hinder this operation and to make it difficult, if not impossible, for new ostreiculturists to operate. He recommends several key steps necessary for the oyster industry to survive: conserve available shell for replanting as cultch; protect spat through cull laws; and expand and protect natural seed areas.

This book is valuable for providing a better understanding of an important natural resource that could go the way of the passenger pigeon unless proper measures are taken. "The Oyster" is food for thought.

Chiles T. A. Larson, "When the oyster has a place in your world" in The Virginian-Pilot and The Ledger-Star, p. C6, Jan. 25, 1987

CRABS OF CAPE COD

by Stephen Berrick. 1986. Natural History Series No. 3. The Cape Cod Museum of Natural History, Brewster, Massachusetts. 80 pp., illustrated. $6.95 plus postage.

Crabs are among the most fascinating animals to be seen when walking the beaches and exploring the drift line for its treasures. As shell collectors, we have a natural affinity for all marine creatures and we often want to study and become better acquainted withese ubiquitous inhabitants of our northern waters.

This book is an excellently written, well illustrated field guide to the crabs of the Cape Cod region and will also be useful for neighboring areas. Twenty-two species are discussed in some detail, with diagnostic characters delineated, and illustrated, with identifying features indicated. An additional dozen species are included in a checklist, but otherwise are not mentioned.

Individual species treatments include scientific name with author and date of description, common name or names, size, color, morphological characteristics, habitat and geographical distribution. The narrative for each species group (spider crabs, for example) provides a wealth of additional data.

The large amount of accurately and engagingly presented information makes this book quite a worthwhile addition to the literature on the marine fauna of the northeastern United States. This reviewer highly recommends this volume, which is for readers at any level of expertise.

Walter E. Sage

CRUELTY TO A SNAIL

(An editorial in the Daily News of November 30, 1986, page 50. For background, see the report on "Social Progress," with photograph, in NOTES 300.21, and "Save That Snail" in NOTES 301.18. — Ed.)

> Shed a tear for Shelldon. The whimsical snail that brightened the intersection of 23rd St., Broadway and Fifth Ave. is gone. With his ear of corn. Community Board 5 kicked him out. It stands triumphant — and ignoble.
>
> Today, the little traffic triangle where Shelldon stood stands bereft. As will the thousands of people — adults and children — who came to love him.
>
> Snail-foes say the site must remain free for other sculptures. But it's doubtful that any will inspire as much delight and outright affection as Shelldon did.
>
> Some argue that Shelldon should be moved around the city, so

different neighborhoods can enjoy him. Shelldon had a wonderful, central home. He deserved to keep it.

Now he's going to SUNY's Old Westbury, Long Island, campus. And in spring, to the Queens County Farm Museum in Floral Park. It's nice they are willing to take in the orphan. It's tragic — and dumb — that they should have to.

IMMIGRANT MUSSEL SETTLES IN GENERATOR

In the Jacksonville (Florida) Shell Club's newsletter, The Shell-O-Gram, of January-February 1987, 28(1):7-9, Harry G. Lee reports on a new menace to water-cooled systems of coastal industrial plants. In Jacksonville last October an engineer of the J.E.A.'s Northside Generator called upon Harry for assistance when unidentified, inch-long bivalves were found in the plant's cooling system. "These critters occurred in substantial concentrations, especially on filters designed to exclude large particles (such as eels and crabs) from fouling the delicate network of pipes in the steam condensers. ... The source of the incoming coolant was the St. Johns River near Blount Island. This locality would provide water too high in salt content for the survival of Corbicula manilensis."

"(The shells) were clearly unlike any shells I or any member of the Jacksonville Shell Club (to my knowledge) had ever collected in the U.S.A. They were translucent, basically yellowish mussels with faint purplish zigzags over the dorsal and posterior aspects. Their shape was nearly identical to the Blue Mussel - Mytilus edulis - which occasionally visits Jacksonville as a stowaway in driftwood, etc. but does not survive our torrid summers."

After examination under the microscope, considerable search of the literature, and a consultation with Dr. Ruth Turner, it was determined that the invading bivalve was Mytella charruana (d'Orbigny, 1846), hereafter referred to as the "Charru Mussel." The species ranges from Venezuela to Argentina and sporadically in tropical western America.

"It was clear we were dealing with a recently-introduced exotic species. Authorities need to be aware of such imports, which are seldom desirable and may prove disastrous - cases in point: the Asiatic Clam, Water Hyacinth, and Gypsy Moth - so I notified the Florida State Museum, the Game and Freshwater Fish Commission (Florida Dept. of Natural Resources), and the Jacksonville office of the Florida Dept. of Environmental Regulation, where I spoke with Larry Eaton, an environmental engineer, who reported first-hand an experience similar to the J.E.A. situation with Paper Mussels - Amygdalum papyrium (Conrad, 1846) in the Sarasota area not long ago. ...

"On October 25 Charlotte Lloyd and I visited Plant Engineer Bob Lucas at the Northside Generating Station. He acquainted us with the general operation of the facility and the basic principles of electrical generation...Later he took us down to the point on the St. Johns River where the plant takes in its coolant water supply. I searched all suitable areas nearby and was unable to find Charru Mussels although Ribbed Mussels were abundant. We could see tankers across the water at Blount Island, and it occurred to us that one of those vessels, not unlikely after a visit to a Venezuelan port, might have provided our city with its first Charru Mussels, stowaways from Latin America. ... "

WHAT'S IN A NAME?

Did you ever wonder why the famous submersible, "Alvin," was so-called? No, it is not a nickname. Read the following excerpts from a personality profile that appeared in Sea Technology 27(12):27.

ALLYN C. VINE — PROLIFIC OCEANOGRAPHER-ENGINEER

By Larry L. Booda
Editor Emeritus of Sea Technology

In his 72 years Allyn Vine has converted literally dozens of basic research discoveries into exploratory development and even further into practical applications.

This modest, quiet, serious physical oceanographer's name appears on many patents, either alone or with co-scientists. To all who know him he is "Al."

Vine spent a 40-year tour at the Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, joining WHOI in 1940 when he was awarded the master of science degree from Lehigh University. In those years he rose from physicist, to oceanographer in 1950, senior scientist in 1963 and scientist emeritus in 1979. He remains active in many projects.

Vine's temporary duty excursions from WHOI included a halftime stint as an oceanographer to the Navy's Bureau of Ships from 1946 to 1949; the Navy's Deep Submergence Systems Review Group, 1963 to 1965 (the DSSRG was the outgrowth of the sinking of the nuclear powered attack submarine USS THRESHER); and lecturer, U.S. Naval War College, Newport, Rhode Island, 1964-1965 and 1967 to 1968.

One of the projects in which Vine took a part was the acquisition and operation of the research submersible ALVIN. The sub was a Navy project, but WHOI was selected as the operator. When it came time to christen the vehicle, there seemed to be a consensus among everybody at WHOI that it be named for Vine, so it became ALVIN.

Concomitantly, the mother vessel, catamaran configured with a platform that could be lowered and raised for launching and retrieving the submersible, was ready to become operational and a name was needed. Again by acclamation the name LULU was chosen. This time it was Vine's mother's first name!

THE LIMPETS

PATELLIDAE, ACMAEIDAE, FISSURELLIDAE

by Lynn Scheu

Imagine for a moment a wave-pounded rock on the tip of South Africa. Here the currents of two oceans clash together, hammering the rock with immense force, scouring it with huge combers, dashing it with icy spray. Then, when the tide goes out, the rock is at the mercy of a dessicating sun and the depredations of wheeling, screaming gulls. Not a hospitable environment for molluscan life, you'd think. But you'd be wrong. Most likely the rock will be so thickly covered with limpets that it is virtually alive...as many as 1300 snails per square yard.

Limpets are supremely adapted for life in an exposed environment.

Characterized by a simple, uncoiled, shield-shaped shell, they present a sturdy, conical shape to diffuse the destructive power of breakers and a low profile to the dragging force of receding waves. Their suction foot enables them to cling tightly when waves dash against them, and to clamp down hard when it is dry, sealing in their own internal moisture.

The term "limpet" refers, not to a particular family of snails, but to any flattened, uncoiled, suction-footed snail. There are many unrelated families of limpets; "limpetism" is a life mode so successful that it has evolved again and again. The archetypal snail of the dim past was probably a limpet, and the highly-evolved air-breathing Siphonaria are limpets. But the term most commonly refers to members of three primitive families: Fissurellidae, Patellidae, and Acmaeidae.

These families are all Archaeogastropods, "ancient snails," near the bottom of the evolutionary ladder. In spite of the fact that they belong to three separate families, they have much in common. All are vegetarian, algae eaters, roaming as far as five feet a day in search of food. Nearly all are nocturnal, avoiding the light and heat of day. None have an operculum in maturity. Sexes are separate, and many species show a tendency to be male in youth, becoming female in maturity. Numerous species in each family excavate a home niche in their rock to which they return after feeding, somehow retracing their outgoing path and exactly maneuvering their shell contour into the shape of their niche.

FISSURELLIDAE, also called the "Keyhole Limpets," have an obvious feature which readily separates them from the others, a perforation or "keyhole" near the apex. This hole enables a Keyhole to exhale waste water without risk of contaminating its incoming water source. An extremely primitive group of these limpets, the Emarginulas, have a notch instead of a keyhole, placed just above the head, for dispelling this waste. The shape and position of the keyhole is variable and is a main diagnostic feature for determining species.

Keyhole limpets have a huge foot which, when extended, may enclose the entire shell. The early stages of the shell are spirally coiled, but this spiral stage is lost as the size of the keyhole increases. They live in the lower intertidal zone, but also range to depths as great as 4000 meters. Limpets of the genus Diodora are already showing signs of becoming carnivores by grazing on sponges along with their normal diet of algae.

PATELLIDAE and ACMAEIDAE both have cap-shaped shells (Patella means "knee cap"). The Patellidae evolved from Acmaeidae stock and both belong to the superfamily Patellacea. They are so similar conchologically that the fossil record is difficult to read, and the shell collector is often stymied, but these limpets are easily separable on anatomical grounds. Besides radular differences, there is the matter of respiration and waste disposal: Acmaeids have a single plume-shaped gill and they vent waste water out the posterior end. Patellids have tiny tentacles fringing the mantle edge which act as gills; they circulate water over these tentacles and vent it on the right side.

The families are sometimes separable by the iridescent sheen of the interior of many Patellas. But this distinguishing feature is by no means uniform, and many Patellas are impossible to separate from

Acmaeids without a thorough knowledge of the group. It is helpful to know that there are no Patellas in the Americas, with the exception of two species from western South America, and that Patellas tend to live in more exposed areas than Acmaeids.

The collector may also find it helpful to know that limpets are quite variable in size, shape and color pattern. Environmental forces are the chief factor in this often-confusing variability. Limpets grow larger in cooler waters. Limpets living in the upper tidal zone tend to be taller than those in the lower tidal zone. Shells in exposed situations tend to be very flat to withstand wave stress; the resultant lowering of the profile pushes the apex nearer the anterior end than normal, further altering the shell shape. Color and pattern are often modified by erosion of the shell, so the juvenile shell may be a better indicator of species than the adult. This variability can make collecting limpets frustrating, but their interesting form and the colorful beauty of their interior nacre make the group a favorite with conchologists.

(See * p. 18)

THE COMMON NAME IS ABALONE

A news report in Underwater USA 3(5):18, September 1986, carried the heading: Smugglers Cash in On Endangered Abalone. The locale: the coast of Chile. Haliotis (common name: Abalone) does not occur on the western coast of South America. The Chilean Abalone is that very wide-mouthed muricid, Concholepas concholepas (Brugière, 1792), which clings like a limpet to rocks all along Chile's 2,650-mile Pacific Coast. The article, from Wire Service reports, reads in part:

Smugglers in Chile are trafficking in abalones, a Pacific Ocean shellfish widely regarded as a delicacy but whose survival in Chilean waters is endangered.

Early in 1986 the government placed a ban until next June on all abalone fishing in nine of the twelve Chilean coastal provinces. The director of the National Fishing Service told a reporter that the ban is difficult to enforce: "There are gangs of smugglers all over the place. They are very difficult to control. Unless this stops, the Chilean abalone faces extinction. Twenty years ago you could find abalones in Chile at a depth of two meters. Today you have to go down to twenty meters."

Abalone fishing remains legal in the far south but with some restrictions. The smugglers transport illegal abalones to the southern zone, claiming they were legally caught there, and then sell them. The law calls for fines for not only unauthorized abalone catching and processing but even for the mere possession of an illegal one.

Chile is the world's largest abalone producer, and last year earned $23 million from legal abalone exports. Ninety-two percent of the officially registered catch is shipped abroad. The biggest customer is Japan, followed by the U.S., Taiwan and Hong Kong.

Chile says its variety of abalone, known in Spanish as "loco," has a unique taste because it is the only one in the world that is carnivorous, sucking in tiny mollusks and fish. Chilean experts say abalones from Australia, New Zealand, Japan, Mexico and the U.S. feed on underwater plants.

(We're interested to know about that "unique taste." If you've had the experience, let us know? — Ed.)

THE WORLD OF MARINE MICROMOLLUSKS

by James H. McLean

Seashells have always had great appeal to collectors of natural objects, as they are unsurpassed in the variety and beauty of their form and color. Some shells are large enough to use as trumpets or punch bowls. However, many species of shelled mollusks are quite small, some no larger than grains of sand. There is, in fact, an entire world of seashells that the observer can only enter with the help of a binocular microscope. With magnification of five to twenty times, one can discover the many different families of minute or small-shelled mollusks known as micromollusks or microshells. All are intricate in form and color; some resemble the more familiar, larger seashells of tropical and temperate seas, but others are entirely different. One finds some species that are full grown at less than a millimeter in maximum size and many others that are mature at sizes up to 6 millimeters (one-quarter of an inch) in length.*

A close look at coarse beach sand may reveal the presence of tiny shells, but this is not the best place to look for them because such specimens are likely to be so abraded that the sculpture, or surface detail, is lost. Occasionally, good recently dead microshells are found on beaches at the drift line, where a narrow deposit of shells can be left by the uppermost reach of the preceding high tide. The best place to look for microshells, and the only place to find them in perfect condition, is where they live. The most prolific habitats are rocky places where algal growth is thick.

You can get a good introductory look at microshells by taking a handful of seaweed off the rocks, either at low tide or by reaching beneath the water as deeply as possible. The algae should be shaken in a small basin of seawater. Many tiny snails may drop off the seaweed into the basin, from which they can be transferred into a small jar. This method has the advantage of isolating living specimens away from sand and gravel particles. You can then examine the living specimens in a dish of seawater under a microscope. The snails move with great rapidity and are fascinating to observe. Unfortunately, you will collect only some of the microshells living in the vicinity with this method, as not all of the species live on the fronds of algae.

A greater variety of microshells can be collected by scooping the surface layer of sand or gravel from the bottom of a tide pool, especially the sand that accumulates under rocks. Another method is to yank surfgrass from the seafloor and shake the roots in a bucket of seawater. You can take an even larger variety of species if you are a scuba diver. On rocky bottoms, you can fill a small cloth sack with the gravel that has accumulated in crevices or under rocks. If you are diving above sandy bottoms, the most effective way to collect the microshells is to sift the sand underwater, using a fine-meshed hand net; the net will let fine sand particles pass through while retaining the larger particles as well as all the shells that were living in the sand.

An unsorted concentration of shell specimens in sand and gravel residue is appropriately known as "grunge" (this word, which brings gravel and mud to mind, is commonly used by collectors, although it is not yet to be found in the dictionary). Grunge samples are rich sources of small shells, but a certain amount of effort is required to separate the shells from the residue—a quart of grunge, which may yield hundreds of small specimens, can take hours to sort. If only the shells (rather than the living animals) are to be studied, it is easiest to handle the sample after it has been washed in fresh water and dried on paper towels (the specimens are so small that there is no problem with odor, but soaking the sample in alcohol prior to drying is one way to make it dry rapidly and completely prevent decay).

Once dried, the sample should be screened into different size fractions, which makes it easier to examine. A set of screens of different sizes can be made from small pieces of hardware cloth and window screening for this purpose; screens of graduated mesh size are also available from geological supply companies. After the dried sample has been screened, the larger fractions can be picked for shells by eye, and the intermediate size can be sorted with the help of a large magnifying glass mounted on a stand; the smallest sizes of the screened fraction have to be examined under a dissecting microscope. Shells of each size can be extracted with fine forceps that are available from biological or geological suppliers. The shells should then be sorted by species and placed in small vials or plastic boxes. In the Malacology Section of the Natural History Museum, we store microshells in micropaleontological slide mounts made of thick cardboard and topped with plastic cover slips; these are also available from biological or geological suppliers. Locality information is written on the slide mounts.

The number of species of microshells that can be found in one place is much greater in tropical waters than in temperate waters. In such places as the Gulf of California, the Philippines, and the Great Barrier Reef in Australia, it is not unusual to find 200, 300, or even 400 different species in one sample. (Although 400 species from one locality may seem like a large number, there are some 50,000 species of mollusks, and large numbers of species occurring at any one place are therefore not unusual.) At a depth of 100 feet, the water may be cooler, and the species diversity and composition often changes; thus many species are found only at or below this depth. Again, the variety of species to be found at these depths is greatest in tropical regions. Here in southern California, a scuba diver who takes a grunge sample at any of the Channel Islands can easily collect hundreds of small specimens, representing as many as 100 different species.

Although many guide books with colored or black and white figures of numerous shells are available to shell collectors, there are no general books that exclusively treat microshells. Indeed, there are only two books treating entire faunas that even attempt to illustrate all of the micromollusks from one region: E. A. Kay's *Hawaiian Marine Shells* (Bishop Museum Press, Honolulu, 1979) and A. W. B. Powell's *New Zealand Mollusca* (Collins, Auckland, 1979). *Marine Shells of Southern California*, which I wrote in 1969 and revised in 1978, includes most of the micromollusks that can be found by shore collectors and scuba divers on rocky bottoms in southern California.

There are four main groups of shelled marine mollusks: the Gastropoda or snails, the Bivalvia or clams, the Scaphopoda or tusk shells, and the Polyplacophora or chitons. The great majority of both small-and large-shelled marine mollusks are gastropods; there are about three times as many species of gastropods as there are of bivalves. The chitons and scaphopods, among which there are no microshells, are relatively few in number. As in all other kinds of animals, each family of marine mollusks has a consistent size range. Thus, entire families may be classified as micromollusks. These families have feeding and reproductive strategies that are as varied as those of their larger relatives.

Juvenile shells (early growth stages) of large-shelled mollusks are also within the size range (up to 6 mm in length) of micromollusks. However, juvenile shells of the large species may be distinguished from those of micromollusks in having a relatively large early whorl (protoconch) of the shell. The early shell also provides clues as to the kind of embryonic development followed in gastropods. Whether the species are large or small, there are two main kinds of embryonic development: some develop directly into miniatures of the adult (after a brief larval stage, either free-swimming or taking place within the confines of egg capsules), others have a long free-swimming larval stage called a veliger. In species that develop directly, the protoconch has only one turn (whorl) before the appearance of shell sculpture like that of the mature shell. In species that have a planktonic veliger stage, the protoconch is followed by two or three whorls having sculpture that is entirely different from that of the adult snail. This early sculpture is formed during the planktonic stage, when the shell must be lighter to stay suspended in the water. The transition to adult shell sculpture, which is readily seen in the shell, marks the change from planktonic life to a life on the sea floor. Both embryonic strategies are found among the microgastropods.

Here at the Natural History Museum, the staff members in the Malacology Section have particularly concentrated on building our collection of micromollusks. Grunge samples are collected from all localities that we visit on our field trips and expeditions. The processing of the material—the picking and sorting of specimens from the grunge—has been done primarily by volunteers, who each devote a day a week to the project. Over the last 20 years, thousands upon thousands of microshells from many places around the world have been added to the research collection. This collection is a major resource, one that is used by specialists from other museums who are studying the small shells in an attempt to learn more about their classification and evolution.

One can generally assign a marine shell species to a genus on the basis of shell characters (features such as absolute size, color pattern, form of sculpture, etc.), but the family classification is based upon anatomical differences in the soft bodies, including internal structure and such external features as the number and placement of the sensory tentacles. Most of the large-shelled marine species are now well known, but there are many smaller species discovered and named each year and untold numbers from the more remote regions of the world yet to be discovered.

The study of micromollusks has always been difficult because of their small size. In recent years, however, a powerful new tool—the scanning electron microscope (SEM)—has made their study more rewarding. Small specimens can be photographed with an almost limitless depth of field, and small areas on the shells can be enlarged. Microsculpture on protoconchs can be examined, revealing detail that is barely visible under the dissecting microscope. Additionally, the soft bodies of these mollusks can be examined with SEM after the specimens are rendered rigid by critical-point drying, which removes all water from the tissues. Viewed with SEM, the microstructure of sense organs on the surface of the animal can be even more intricate than the fine sculpture of the shells.

The feeding device of snails, and other mollusks except bivalves, is the radula, a rasplike structure that bears rows of microscopoic teeth. The configurations of radular teeth are used in assigning species to their correct family. The SEM has greatly facilitated study of the extremely small radulae of microgastropods. Some of the applications of the SEM to research on micromollusks are shown here in a series of illustrations of the recently described monoplacophoran limpet *Vema hyalina*.

Many groups of minute mollusks continue to be known only by their shells in museum collections. The shells of different species of micromollusks often appear to be quite similar, but the anatomies differ enough to place them in quite unrelated families. Thus the species in these groups need to be examined alive before we can fully understand their relationships. Many questions remain to be answered, and our quest for micromollusks from around the world continues.

*Shells between one-quarter inch to one inch in length are small but are too large to be called microshells.

Reprinted from *Terra*, Vol. 22, No. 6, July/August, 1984.

Dr. James H. McLean, Malacology Section, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007

SHELLS and SEA LIFE 16(9):153

THERE'S NO ACCOUNTING FOR TASTES

(Sharks Think Undersea Cable is Yum-Yum)

The American Telephone and Telegraph Company (AT&T) wanted to start building the first fiber-optic cable this fall. In proving the system, a prototype cable was installed in the Canary Islands.

It was discovered that there was a biological problem. The cable had to be pulled up three times and patched due to shark bites.

Half of the 120-kilometer cable is at more than 2,000 meters deep and it reaches a maximum of 3,000 meters. The problems started last winter when technicians recorded sudden electrical leaks. Each time the cable was raised, shark teeth were found embedded in the cable. The bites were located between 1,000 and 1,700 meters.

Sharks seldom bite coaxial cable, and bite mostly vertical objects. The kind of shark found at those depths differs from the shallow water varieties, we were told by Dr. Eugenie Clark, shark authority of the University of Maryland.

Larry Booda in Editor's Corner, Sea Technology 27(11):77, November 1986

WHEREFROM A CAMEO?

Question: Are cameos carved from the shell of a conch?

Answer: Conchs are sometimes used in cameo production, but the highly prized shells of the helmet family (Cassidae) form the basis for the industry. (Helmet shells are sometimes referred to as conchs, but the true conchs belong to another family, the Strombidae.) Cameos with a brownish color are carved from helmet shells from the West Indies (Cassis tuberosa); those with a reddish hue come from helmets collected in waters off Mozambique and Madagascar (C. rufa).

Cameo carving is a centuries-old art practiced chiefly in Italy, where the principal center is Torre del Greco near Naples. Although the shells are hard to the touch and require considerable pressure to carve, they are extremely fragile and break easily. Only the area around the lip of the shell can be used for large carvings, but it is the apex of the shell that produces the pieces of finest quality. In addition to shells, precious stones such as agate or onyx may also be used in carving cameos.

IOF Sea Secrets, Sept.-Oct. 1986, p.377

*Lynn Scheu's well-written article, The Limpets, is reprinted from The Littorina XII(1):5-6 of the Louisville Conchological Society.

NEW YORK SHELL CLUB MEMBERS, 1986-7

Allen Aigen, 223 Clark Ave., Staten Island, NY 10306
Helene Avellanet, 105 Clipper Way, Nokomis, FL 33555

Alice Barlow, 76 Westervelt Ave., Tenafly, NJ 07670
Mary Anne Bastek, 1 Vincent Rd. Apt. 6I, Bronxville, NY 10708
Israel Bendersky, 111-45 76 Ave., Forest Hills, NY 11375
John B. Bockelmann, 40 Sussex Rd., Tenafly, NJ 07670
Katie Brown, P.O. Box 381, Franklin Lakes, NJ 07417

Fred Cannon, 292 Warren St., Brooklyn, NY 11201
Edna Christensen, 68-45 Harrow St., Forest Hills, NY 11375
Linda Ciaston, 146 Chester St., Mt.Vernon, NY 10552
Alice K. Cloos, 40-25 196 St., Flushing, NY 11358
Philip W. Clover, P.O. Box 339, Glen Ellen, CA 95442
Edward F. Cowles, 12 Hillcrest Ave., New Rochelle, NY 10801
Jane Crawford, 18 Stone Fence Rd., Bernardsville, NJ 07924
Vincent Cusumano, 309 Court St., Brooklyn, NY 11231

Mr. & Mrs. Anthony D'Attilio, Box 1390 Balboa Pk.,
San Diego Natural History Museum, San Diego CA 92112
Dr. & Mrs. Leonard DeDuke, 86-15 Broadway, Elmhurst, NY 11373
Phyllis Diegel, 143 Alcazar St., Royal Palm Beach, FL 33411
Kathleen Donnelly & Family, 30 Aberdeen Ave., Iselin, NJ 08830
Edward Dunlap, RR. 1 Box 416, Rhinebeck, NY 12572

Grace Eddison, "Wildwood" 100 Anemone Ct., Carlisle, KY 40311
Bruce Einsohn, 261 Seaman Ave., New York, NY 10034
William K. Emerson, American Museum of Natural History, New York, NY 10024

Florence Fearington, 150 E. 69th St., Apt. 15K, New York, NY 10021
Harold Feinberg, American Museum of Natural History, New York, NY 10024
Dr. & Mrs. Mansfield Fuldner, 440 Riverside Dr., New York, NY 10027

Esther Geller, 336 DeMott Ave., Rockville Ctr., NY 11570
Nancy Gilfillan, 9922 Edward Ave., Bethesda, MD 20814
Martin Gill, 1306 E. 48 St., Brooklyn, NY 11234
Sophie B. Ginilewicz, 110 Fisher Ave., Eastchester, NY 10709
Candace L. Gipple, 20 E. 67 St., Apt. 6F, New York, NY 10021
Herbert F. Goetze, 43-05 65 St., C-10, Woodside, NY 11377
Richard Goldberg, Worldwide Specimen Shells, P.O. Box 137, Fresh Meadows,
NY 11365
Dr. & Mrs. J. Golden, 690 Hungry Harbor Rd., N.Woodmere, NY 11581
Henry S. Gordon, 1 Washington Square S., #11A, New York, NY 10012
Helen Graesdal, 401 West End Ave., Apt.3F, New York, NY 10024

Nathan Halpern, 993 Fifth Ave., New York, NY 10028
Waverly Harmon, 464 Riverside Dr. Apt. 102, New York, NY 10027
Marie Hennessy, 2121 Shore Parkway, #7K, Brooklyn, NY 11214
Dr. & Mrs. Chas.Hesselbach, Box 79 Cayman Brac, Cayman Islands, B.W.I.
Sandra Holtzman, 220 Sullivan St. #5F, New York, NY 10012
Irving Hoppenwasser, 1834 W. 9 St., Brooklyn, NY 11223
Marion Hubbard, 3957 Harlow Ct., Seaford, NY 11783
Sandra Hunter, 350 E. 77 St., New York, NY 10021

Howard Israel, 83-37 St. James Ave., Elmhurst, NY 11373

Walter H. Jacobs, 585 West End Ave., New York, NY 10024
Mr. & Mrs. Robert Janowsky, P.O. Box 482, West Hempstead, NY 11552
Dorothy Jensen, P.O. Box 2205, Astoria, NY 11102
Veronica Parker Johns, 590 Third Ave., New York, NY 10016
Mr. & Mrs. Leon Juster, 515 West End Ave., New York, NY 10024

Nick Katsaras, 27 N. Dean St., Englewood, NJ 07631
Maud T. King, 448 E. 88 St. Apt. 2B, New York, NY 10128
Bernard Kinsey, 350 W. 71 St., New York, NY 10023
Linda Kogin, 72-81 113 St., Forest Hills, NY 11375
Rose Kurss, 1120 Brighton Beach Ave., Brooklyn, NY 11235

Martin Lerner, 13 Plymouth Rd., Dix Hills, NY 11746
Miriam Levin, 57 Stonicker Dr., Lawrenceville, NJ 08648
Anita Levine, 139-62 Pershing Crescent, Jamaica, NY 11435
Carol, William Sr., William Jr., Charles, Rachel Lindsay,
    69 Balsam Rd., Wayne, NJ 07470
Kathleen Lombardi, 65 Montlegon Ave., Oakland, NJ 07436
Theta & Lydia Lourbacos, 66 W. 94 St. Apt. 20C, New York, NY 10025

Alan Maisel, 1922 Ryder St., Brooklyn, NY 11234
Arthur Maneki, 249 E. 77 St., New York, NY 10021
Richard & Scott Many, 1 Vincent Rd. Apt. 6I, Bronxville, NY 10708
William Manzo, 406 Woodlawn Dr., Forked River, NJ 08731
Deena Martin, 543 Ashland Ave., Baldwin, NY 11510
Esmond B. Martin, Box 270, 174 Post Rd., Old Westbury, NY 11568
Mr. & Mrs. David McMillen, Box 421 Viola Rd., No.Eastham, MA 02651
Nancy McTiernan, 100 Remsen St. Apt. 5A, Brooklyn, NY 11201
Phyllis Moran, 1 Sterling Rd., Harrison, NY 10528
Irene Murray, 125 Bay Drive, Huntington, NY 11743

Ira Nadborne, 220-55 46 Ave. Apt. 5J, Bayside, NY 11361
Meyer Naide, 2034 Spruce St., Philadelphia, PA 19103

Alfred Pallavicini, 546-5 Main St. N., New York, NY 10044
Mary B. Pohoryles, 435 W. 23 St. #4E., New York, NY 10011
Lawrence Potter, 15 Rogers Ave., Bellport, NY 11713

Mr. & Mrs. George Raeihle, 211 Milligan Rd., West Babylon, NY 11704
Mr. & Mrs. Hans Reimann, 8 Rande Dr., Wayne, NJ 07470
Robert Remmert, 1092 Logan Rd., Wantagh, NY 11793
Elizabeth Renman, 1528 E. 53 St., Brooklyn, NY 11234
John Robinson, 100 Remsen St. Apt. 5A, Brooklyn, NY 11201
Linda Roshia, 11 Gaymor Lane, Farmingville, NY 11738
Norman V. Rothwell, 15 Clark St., #1D, Brooklyn, NY 11201
Mr. & Mrs. John Ruddley, 97-40 62 Dr., Rego Park, NY 11374

Walter Sage, American Museum of Natural History, New York, NY 10024
Kenneth Sanger, 55 Richbell Rd., White Plains, NY 10605
Al Scarpetti, 283 W. 11 St., New York, NY 10014
Dan Schlesinger, 83-75 118 St., Kew Gardens, NY 11415
Pamela Scott, 16861 Davis Rd. SW #824, Ft. Myers, FL 33908
Nancy Sculerati, 235 W. 22 St. Apt. 3N, New York, NY 10011
Shirley Seid, Box M, Island Inn, Sanibel, FL 33957
William H. Shaw, Jr., 3900 Villmoor Lane SW, Ft. Myers, FL 33907
Renata W. Skinner, 49 Quail Ridge Rd., Greenville, NC 27834

Melvin L. Springer, 2071 Waltoffer Ave., N. Belmore, NY 11710
Stanley Spytkowski, 56 Park Ave. Terr., Yonkers, NY 10703
Mr. & Mrs. Ernest Stark, 43-57 Union St., Flushing, NY 11355
Orville Steward, P.O. Box 33, Plymouth, VT 05056
Clare K. Stout, 51 Bank St., New Canaan, CT 06840

Masao Tabakotani, Mitsubishi, 520 Madison Ave., New York, NY 10022
Jane Teichler, 505 West End Ave., New York, NY 10024
Mathilde Teitgen, 45-25 248 St., Little Neck, NY 11362

Mathilde Weingartner, 17 Amelia Court, Staten Island, NY 10310
Fredric Weiss, 6 Plymouth Rd., Great Neck, NY 11023
Sol Weiss, 2562 Ramona St., East Meadow, NY 11554
Milton Werner, Jr., 70 Richmond St., Brooklyn, NY 11208
Anne Whiteman, 63 E. 9 St., New York, NY 10003
Laura J. Wilgan, 25 Blackstone Rd., Trumbull, CT 06611
Margaret Williams, Rt. 3, Box 28A, Sarasota, FL 33580
Ethelyn Woodlock, 1100 S. Belcher Rd., Largo,FL 33541
Calvin Wright, Box 403, N. Falmouth, MA 02556

Lois Zarka, 4900 Beach 49 St., Brooklyn, NY 11224

CORRESPONDING MEMBERS, 1986-7

Jose Antonsanti, Vivaldi Pacheco #41, Yauco, Puerto Rico 00768
John Armstrong, c/o E.A. LaCroix, 9526 S. Bluford Ave., Whittier,CA 90605
Albert Bergman, 7110 11 Ave.West, Bradenton, FL 33529
Mary Bittmann, 12207 N.Brightwater Blvd., Tampa, FL 33617
Donald Bosch, 93 Ridgeport Rd.,River Hills Plant.,Lake Wylie,SC 29710
Marion Britz, 40 Hill Rd., Belmont, MA 02178
Rose Burch, 1300 Mayfield Rd., Apt.61L, Seal Beach, CA 90740
Alice Burke, 1820 S. Austin Blvd., Chicago, IL 60650

Monique Caubere, 171 S. Broadway, South Nyack, NY 10960
Mr. & Mrs Harry Chippeaux, 1308 Biltmore Dr., Ft. Meyers, FL 33901
Juliette Compitello, 5630 Alta Vista Rd., Bethesda, MD 20817

A. J. DaMotta, 6,Bamboo Ct.,59/38 Sukhumuit 26, Bangkok 11, Thailand
Constance Duprey, 4312 Lealand Lane, Nashville, TN 37204
Stanley Dvorak, 3856 W. 26 St., Chicago, IL 60623

Barbara J. Elliott, 10 Champa Rd., Billerica, MA 01821

Maria Falter, 946 Hamlin Way, Lindsay, CA 93247
Francisco Fernandez, Apartado 308, Maracay Eda Aragua, Venezuela
Tedeusz Flisowski, 22 Warrawee St., Mid Saphire, Coffs Harbor 2450,
N.S. Wales, Australia
Edmond R. Foster III, 67 Whittier Rd., Wellesley MA 02181
Sam Freed, Deerfield Pk.Bldg.8,Apt.7, Hightstown, NJ 08520

Mr. & Mrs. John Germer, 13929 Trenton Rd., Sunbury, OH 43074
John A. Graham, 356 Little St., Belleville, NJ 07109
Helen S. Gross, 24009 248 Ave. S.E., Maple Valley, WA 98038

Thomas Hale, 347 N.E. 136 Ave., Portland, OR 97230
Frank Hausman, 121 N.E. 15 St., Homestead, FL 33030
Norma Hoag, 41 Perry St. Apt. 2A, New York, NY 10014

George Kapousouzoglou, P.O. Box 25046, Athens, 10026 Greece
Freda F. Knauer, 244 33 St., Avalon, NJ 08202

Thomas L. Laavy, Rt. 12 Maruca Dr., Greenville, SC 29609
Harry G. Lee, 709 Lomax St., Jacksonville, FL 32204
John R. Lewis, 5958 Brigadoon Way, Sarasota, FL 33583
John R.H. Lightbourn, Shellbourn,52 Harrington Sound Rd.,
Hamilton Parish, CR04, Bermuda
William H. Loery, East Mountain Rd., Belle Mead, NJ 08502

The Michaelsons, Shell Gallery, 77 Union St., Newton Center, MA 02159

Edward Nieburger, P.O. Box 3095, Andover, MA 01810

Sally Payne, 2703 Wayne Circle, Decatur, AL 35603
Wilma R. Powell, 5117 Hawley Blvd., San Diego, CA 92116
Robert Y. Pratt, 2540 29 Ave. W., Seattle, WA 98199

Millicent Quallins, 30-05 High St., Fairlawn, NJ 07410

Saul Rotter, 130 Sunrise Ave., Palm Beach, FL 33480

Sondra Saltzman, 230 Park Ave., Park Ridge, NJ 07656
Mary Saul, Gate Cottage, Castlemorton Common, Malvern, Worc., England
Dorothy Schmid, Red Mills Rd., RFD #3, Box 3479, Mahopac, NY 10541
Edward Slater, 25 Hewlett Lane, Port Washington, NY 11050
Mr. & Mrs. Ivan Spoor, 518 Cunningham St., Corpus Christi, TX 78411
Jordan Star, 186 Parkway Dr., Roslyn Heights, NY 11577
Marie Sussman, 4523 Ave. H, Brooklyn, NY 11234
Virginia Swenson, 1325 North Shore Dr., Roswell, GA 30076

Mrs. Winfield Thompson 228 Oak Ave., Box 1144, Anna Maria, FL 33501
Mrs. Arax Tricomi, 10234 Paradise Blvd. Treasure Island, FL 33706

Howard Paul Wagner, Oude Singel 222A, 2312 RJ Leiden, Netherlands
Russell Westcott, 10 Cricket Court, Old Saybrook, CT 06475
Adlai Wheel, Pet Haven, W. Seneca Turnpike, Syracuse, NY 13215
Wilma Wicks, Unit 3/2 Moonya Rd., Carnegie, Victoria, Australia 3163

Donald Young, 11690 Parkview Lane, Seminole, FL 33542

Addendum:

Eli Horowitz, 102-50 62 Rd.,Forest Hills, NY 11375

If there are errors or omissions in the listing, we apologize, but please let us know immediately so that our mailings will reach you promptly.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

EDNA M.CHRISTENSEN
68-45 Harrow St.
Forest Hills, N.Y. 11375
718-261-7089

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, NANCY P. McTIERNAN

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC, Items and articles for publication in the NOTES should be sent to the Editor.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History.

JUNE 14, 1987 at 2:00 p.m. FRED CANNON'S SHELL COLLECTION -
at his home, 292 Warren Street, Brooklyn

Please note change from our usual meeting place; see page 20 for travel directions, and let Fred know in advance if you plan to attend.

SPECIAL NOTICE: The American Museum of Natural History will hold its annual Identification Day on Saturday, June 6, 1:00 to 5:00 p.m. on the 1st Floor near the 77th Street Entrance; rocks, shells, insects, fossils, feathers, bones, fabrics and artifacts may be shown to Museum staff for identification.

CONTENTS

		Page
Obituary: Henry Drummond Russell	Editor	2
Obituary: Worthington Smith Bitler	Walter E. Sage	2
MKJ Scholarship Award	AMU News	2
Georgia's State Seashell	Savannah News	2
PUBLICATIONS:		
Seashells of North America, by Abbott; Revised Edition	American Malacol., Inc.	3
Annotated Checklist Recent Marine Gastropods Puerto Rico, by Ortiz-Corps	" " "	3
Register American Malacologists (Sale)	" " "	3
REVIEW:		
Living Terebras of the World, by Bratcher and Cernohorsky	Walter E. Sage	4
British Society Marks Its 1000th Meeting	Conchologists' Newsl.	5
Exhibit, Houston Museum Natural Science	News release	5
Elliptio judithae, n.sp., A.H. Clarke	Malacology Data Net	6
Molluscan Journals, limited availability	American Malacol. Inc.	6
Tasmania, Australia	Vilma Wicks	7
Letter from Save Our Snails Society	A. Jeffs	8
Some Specifics on Species	George Karleskint, Jr.	9
COA at St. Louis	COA Bulletin	11
AMU at Key West	AMU News	12
Our National Marine Sanctuaries	Nancy Foster (extracts)	12
Mail from Moçambique	carlos Celiano Isaac	14
Highlights of the February Meeting	Milton Werner	14
Highlights of the March Meeting	Milton Werner	15
Highlights of the April Meeting	Milton Werner	16
Helix aspersa in the News — Again	News from DE and VA	16
The Big African Snail. From Strandloper,	in NCSC Newsletter	17
"My Pet Slug" (Carvings)	New York Daily News	18

HENRY DRUMMOND RUSSELL

We have received news of the death on January 24th of Dr. Henry D. Russell at age 78, A native New Englander, he was a resident of Dover, Massachusetts and had been associated with the Department of Mollusks of Harvard's Museum of Comparative Zoology since 1932. As a malacologist and marine zoologist, Dr. Russell held important positions in the societies of which he was a member, was listed in American Men of Science and contributed much to the literature. One of his most widely known works is "Index Nudibranchia," published in 1971.

His long-time membership in the American Malacological Union and the Boston Malacological Club added to his wide acquaintanceship. He was considerate and helpful to students and amateurs, and over a period of years made many contributions to these NOTES under the title "Malacological Article of the Month" — a series of references to studies of living mollusks, with brief summaries.

We join his many friends and associates in extending sympathy to his wife, "Libby," their daughters and families.

dr

WORTHINGTON SMITH BITLER

Admiral Worthington Smith Bitler, "Skip" to his friends, died on April 4th, 1987. He was a distant cousin of Bill Old's and was well known for his extensive cone collection which went to Bob da Motta some years ago. There was a recent picture of "Skip" in Hawaiian Shell News for August, 1986. He and his wife were, in recent years, resident in Medford, New Jersey, where I visited them several times in the last three years. He had put together a second cone collection, of over 3,000 specimens, which he had divided between Bob da Motta and The American Museum of Natural History — and he still had a few hundred cones.

"Skip" would have been 87 on April 29, on which date there was a memorial service in Virginia. Born in Norfolk, he graduated from the U.S. Naval Academy and pursued a career in the Navy 1918-1953, retiring with the rank of Rear Admiral. Our deep sympathy is extended to his wife, Doris.

Additional data on "Skip" can be found in the 1973 first edition of the American Malacologists register, page 207.

Walter E. Sage

SCHOLARSHIP AWARD

The Astronaut Trail Shell Club of Brevard County, Florida, gives an annual scholarship award of $500 in memory of Morris Karl Jacobson. The 1987 winner was M. Bowie Kotrla, Florida State University, for her work on ultrastructure of unionids.

AMU NEWS

GEORGIA'S STATE SEASHELL

is the knobbed whelk, Busycon carica, unanimously approved by the State House of Representatives on February 3rd, 1987, and reported in the Savannah Morning News of February 5th.

PUBLICATIONS:

SEASHELLS OF NORTH AMERICA (REVISED EDITION)

by R. Tucker Abbott, 1986. 280 pp., illus., paperback, Golden Press, New York. Price: $7.95 (Check with your local bookseller.) or, by mail, $8.95 postpaid, from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

Like an old shoe, this convenient guide to 850 marine mollusks of North America has been used in comfort by most shell collectors and marine biology classes for nearly twenty years. The thought of a "revised edition," although obviously needed after such a long time, usually sends a chill through our nomenclatorial spines.

Dyed-in-the-wool shellers will be glad to know that the first forty pages of biology, geological history, and collecting methods, as well as the thousands of beautiful paintings by George Sandstrom, have largely remained unchanged.

Those who have kept up to date with recent advances in malacology will recognize improvements that twenty years of research have dictated. Old terms like Pelecypoda have been replaced by Bivalvia; our Eastern Bay Scallops are _Argopecten_, no longer _Aequipecten_; _Littorina planaxis_ of the Pacific coast is _L. keenae_ Rosewater, and the Pacific Geoduck is _Panopea abrupta_ (Conrad), no longer _P. generosa_ — to mention but a few of the 113 changes in the revision.

Scientific knowledge is not carved in stone; it profits by improvements and necessary change. An up-dated bibliography and re-set index complete this friendly bridge between _Seashells of the World_ and the now out-of-print _American Seashells_ by the same author.

R. Tucker Abbott in CENTRAL FLORIDA SHELL NEWS, _7_(10):6, March 1987.

AN ANNOTATED CHECKLIST OF THE RECENT MARINE GASTROPODA FROM PUERTO RICO

by Dr. Edgardo Ortiz-Corps, Department of Biology, Humacao University College, PR. 220 pp., size : 8 1/2 X 11", price: $9.00 postpaid from American Malacologists, P.O. Box 1192, Burlington, MA 01803.

In one of the most carefully and thoroughly documented faunal checklists of the Caribbean, Dr. Ortiz-Corps reports the presence in Puerto Rico of 743 marine gastropods, falling into 311 genera and 114 families. This is in contrast to the 437 species reported by Warmke and Abbott 25 years ago, and the 312 by Dall and Simpson in 1901.

Under each species are synonyms, all known references in the literature, including occurrences, biology and recent nomenclatural changes. There are 228 works listed in the bibliography of Puerto Rican marine gastropods. This 220-page report was issued in stapled, paperback form as the Sexto Simposio de la Fauna de Puerto Rico Y el Caribe held in Humacao in April 1985. The supply is limited, so order now.

NEWS BULLETIN, American Malacologists

Also announced is a special summer sale of the latest REGISTER OF AMERICAN MALACOLOGISTS, 1986-87. Bound, 8 1/2 X 11", regularly

$21.00, now 1/3 off until September 1, 1987, bringing it to $14.00 postpaid; overseas please add $2.00. American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Their news bulletin states that this new edition lists 2,600 names and addresses, 1,200 biographies, of active malacologists and shell collectors, and aptly categorizes the volume as "A useful Who's Who."

REVIEW:

LIVING TEREBRAS OF THE WORLD

A Monograph of the Recent Terebridae of the World, by Twila Bratcher and Walter O. Cernohorsky. 1987. American Malacologists, Inc., P.O. Box 1192, Burlington, Massachusetts 01803. 240 pp., 6 color and 68 black and white plates, 36 text figures. $54.50.

At long last an extensive, modern treatment of this large and important family of marine gastropods has been prepared by two world-recognized authorities. These specialists have studied these tropical mollusks for many years in their natural habitat and in museum collections, and have provided scientists and collectors with an excellent identification guide to these colorful, sand-dwelling mollusks. Having examined all original descriptions and all existing type specimens, the authors recognize 268 species. All type specimens are illustrated, and description, discussion, and synonymies are provided for each of the valid species. Recognizing that these species often exhibit wide variation in color, sculpture, and ecology, subspecies and form names have not been used. No new species have been described.

An introductory section on the natural history of terebras covers shell morphology and features useful in identification, functional anatomy, feeding, reproduction, radula, habitat, fossil species, predators, collecting and cleaning. The systematic section covers nearly 200 species, and the text is completed with glossary, bibliography, and index to all names in Terebridae. The species have been assigned to four genera and one subgenus, primarily by shell sculpture — additional data on radula and animal are necessary before refinement of the classification can be made. The genus-level groupings are as follows: _Terebra_, with 139 Indo-Pacific and 71 Eastern Pacific and Atlantic species; _Hastula_ (_Hastula_), with 15 Indo-Pacific and 5 Eastern Pacific and Atlantic species; _Hastula_ (_Impages_), with 7 Indo-Pacific and 4 Eastern Pacific species; _Duplicaria_, with 26 Indo-Pacific species; and _Terenolla_, with a single Indo-Pacific species.

The species accounts begin with the citations for the original description and subsequent illustrated papers for each species considered valid. Junior synonyms are listed, as are all particulars about a valid species. Species descriptions include size, color, outline of whorls, protoconch, subsutural band, axial sculpture, spiral sculpture, aperture, columella, and any unusual features. The type locality and location of the type is given for each species and junior synonym. The distribution as known personally to the authors is given, and in the discussion of each species are included such remarks as comparisons to related species, ecological data, identifying characters, and general notes.

The color plates give the reader an idea of the variability of these species, and the black and white illustrations and numerous enlargements show details of sculpture so important in proper identification of these species. Species are given numbers in the text, on the black and white plates and in the index, so that the reader can easily locate a species. Species are arranged in the text so that species with similar shell characters are nearby for easy comparison. The photos are also near the text to facilitate comparison and use of this book. Lists of higher category names that have been proposed, excluded species, and doubtful species, add to the value of this volume.

This compilation is a state-of-the-art treatise on an interesting group of marine mollusks and gives the reader a wealth of information that few books on a mollusk family have provided in recent years. The work is uniformly excellent and of unquestionable scientific merit. With the illustration of the type material, we know what each terebrid name refers to, and with the outstanding enlarged photos we can easily compare our specimens and verify or reject identifications. This book certainly ranks as a classic of malacological literature and will provide the basis for continued advances in terebrid taxonomy. The authors are to be commended for a task well executed, and all interested parties are urged to obtain a copy of this book and take advantage of the information it provides.

Walter E. Sage

BRITISH SOCIETY MARKS ITS 1,000th MEETING

We send congratulations to the Conchological Society of Great Britain and Ireland on the occasion of its 1,000th meeting, celebrated the weekend of May 22 - 24 at Leeds. Although ordinary meetings are held at the British Museum (Natural History) in London, the invitation of the Yorkshire Conchological Society to hold the observance at Leeds was accepted as most appropriate, as it was at Leeds that the Society had its beginning.

We quote from the abstract of the talk, "A Thousand Meetings Ago," given by S. Peter Dance at this historic meeting:

> On the twelfth of October, 1876, in the fortieth year of Victoria's reign, four men gathered in an unpretentious house on the outskirts of Leeds and agreed to hold fortnightly meetings at each other's residence alternately. On that day John William Taylor, William Denison Roebuck, William Nelson and Henry Crowther, respectively printer, solicitor, currier and museum curator, constituted the founding membership of the Conchological Club of Leeds, parent body of the Conchological Society of Great Britain and Ireland.

The announcement of the meeting, its program, and abstracts of talks appeared in the 100th issue of the Society's popular publication, The Conchologists' Newsletter, March 1987.

NEW EXHIBIT

The Houston Museum of Natural Science has recently completed and opened the Strake Hall of Malacology. Curator Constance Boone selected the shells to display, choosing 2,000 specimens from the over 300,000 in the museum's collection. The exhibit is arranged in two sections: One is for beauty, with shells backlighted to show delicate colors and patterns, plus classic rarities and new discoveries. The second section is educational and is named for Betty and Larry Allen, whose endowment provided the monies to prepare it. Here are two videos of living mollusks, numerous graphics, large backlit transparencies, a growth series of Busycon perversum egg to adult, habitats, and much more.

Connie Boone proudly pointed out to a reporter from the Houston Post that every shell in the museum's collection was either donated or gathered on museum-sponsored trips; not one item has been purchased.

The Houston Museum's mollusk collection grew during the 27-year tenure of the late Tom Pulley who, also for many years, was mentor to the Houston Conchological Society. Now the museum's collection of mollusks from the Northwest Gulf of Mexico is the largest and most significant in the world; members of the Conchological Society can be proud of their contributions.

(The Houston Museum of Natural Science and Burke Baker Planetarium is located at 1 Hermann Circle Drive, Hermann Park, Houston, Texas.)

ELLIPTIO JUDITHAE

In Malacology Data Net (Ecosearch Series), Volume 1, No. 4, December 4th, 1986, on pages 78 - 93, Arthur H. Clarke gives a detailed description: Elliptio judithae, New Species (Bivalvia, Unionidae). From the Neuse River, North Carolina. We present the Abstract:

> Elliptio judithae, n.sp., may be distinguished from other southern Atlantic Drainage unionids by its delicate, centrally plicate shell, coronate oncurrent papillae, and irregularly developed branchial septa. It is believed to be a primitive species of Elliptio not closely related to any other species which is anatomically known. It is rare and its survival is believed to be in jeopardy, partly because of competition from recently introduced and now dominent Corbicula fluminea.
>
> For complete information, write to: Dr. Arthur H. Clarke, Editor, Ecosearch, Inc., 325 East Bayview, Portland, Texas 78374.

MOLLUSCAN JOURNALS, limited availability.

The latest news bulletin from American Malacologists, Inc. advises: "We are now forwarding American orders for the back issues of the two prestigious malacological journals, PROCEEDINGS OF THE MALACOLOGICAL SOCIETY OF LONDON (ENGLAND) and its continuation, the JOURNAL OF MOLLUSCAN STUDIES.

Odd numbers are available from vols. 4-51; complete vols. from 9-13; 35-37; 39-40; 44-46; 48-51. Write for list and prices. We also buy back numbers to help others 'fill in'."

Address: American Malacologists, Inc. P.O. Box 1192, Burlington, Massachusetts 01803.

(American Malacologists, Inc. has exclusive distribution rights in the United States for both PROCEEDINGS and JOURNAL, publications of the Malacological Society of London.)

TASMANIA, AUSTRALIA

Vilma Wicks
Carnegie 3163
Victoria, Australia

Tasmania is the most southern part of Australia. It is an island discovered by Abel Tasman in 1642, with settlement commencing in 1803. It is the seventh state of Australia, separated from the mainland by Bass Strait, a stretch of water which is often very rough. Many thousands of years ago it was a part of the land mass now known as Australia. A separation occurred after the melting period of the ice age. There are many small islands around; these had been the peaks of mountains. Tasmania is like a condensed country, being 196 kilometers north to south by 315 east to west.

I have been to Tasmania and, I must say, my first impression was the color blue. Prior to going, I thought the advertising brochures overdid the deep color, but discovered when I went there and saw for myself, it is true. The blue is not only intense but the blue distance is closer, the hills in particular.

The flowers also are a deeper hue, especially I mention hydrangeas: the pinks and blues are very intense. This of course is the result of the soil in which they grow — it is very volcanic. The climate is cooler than in Victoria, but I believe is enjoyed by all who live there. A good place to live, and a good place for a holiday as there are a lot of different character areas which are reached in a short time. There are many fine beaches of easy access around the coast, with some still remaining unexplored. Some are of the wilderness area.

Apart from the southwest coast, which has the magnificent wilderness national park extending up to midwest, shells can be gathered along much of the coast. From Strahan, midwest, there are many bivalves. The sand is creamy white and fine, extending for twenty-five miles with sand dunes.

At this point I must say that it was my youngest son, Ian, who with his family was on a camping holiday in January this year, who brought back for me some sixteen different species of shells from a number of beaches. Ian also brought back the information:

From Wynyard on the north coast there are sandy beaches with rock shelves like many of the Victorian ocean beaches. Further along is Asbestos Range National Park, a sand dune area. Down the east coast, which is more settled, often by people in retirement, we pass Bichino, Coles Bay, and Wineglass Bay, to name a few. Wineglass Bay has glitter in the sand from the granite; the sand is fine and light in color. Most of the gastropods came from the east coast, whilst the bivalves were from the west coast. The shells were all beach gathered, worn but nice to have. Now the list:

Dicathais textilosa Lamarck, 1816; *Antephalium semigranosum* Lamarck, 1822; *Notocypraea angustata* Gmelin, 1791; *Cominella liniolata* Lamarck; *Subninella undulata* Solander, 1786; *Amorena undulata* (Lamarck, 1804); a rare *Polinices conicus* (Lamarck, 1822); *Cabestana spengleri* (Perry, 1811); the Wedding Cake Venus, *Callanaitis disjecta* (Perry, 1811); *Solen vaginoides* Lamarck, 1818; *Pseudarcopagia botanica* Hedley, 1917; *Pecten meridionalis* Tate, 1886; *Mesopeplum tasmanicum* Adams & Angas, 1863; *Phacosoma coerulea* Reeve, 1850. There was also the turritellid, Maoricolpus roseus (Quoy & Gaimard, 1834), (information from Museum of Victoria), a species from New Zealand which was introduced to Tasmania around the 1920's and is now found living in quite large numbers.

From King Island, which is located north off the northwest point of Tasmania, is to be found Voluta kingi Cox, 1871, considered rare. It is listed in Webb's Handbook of Shell Collectors where it is compared to Voluta sclateri Cox 1869. The Wonder Cowry, so-called as it looks like a tropical shell, but comes from deep cold water in Bass Strait and needs to be dredged. Its name is Umbilia hesitata Iredale, 1916, it and the form howelli Iredale, 1931, both need to be dredged. U. howelli lives in water much deeper than does hesitata, and so gradually loses the soft golden color and markings of hesitata and is rare. It is then a white shell; both are interesting and attractive.

Tasmania is called "The Apple Isle," but I would say that it has more than apples.

Literature cited:

May, W. L. and J. Hope Macpherson, 1958. An Illustrated Index of Tasmanian Shells. 54 pp., 50 pl. National Museum of Victoria.

Webb, Walter F., 1967. Handbook for Shell Collectors. 264 pp., 2,000 species foreign to the U.S. Lee Pub.

March 20, 1987

Edward F. Cowles, President
New York Shell Club, Inc.

Dear Edward

Thank you for the kind donation towards the work of the Save Our Snails Society, and in particular our Placostylus conservation efforts.

You will appreciate that for a limited interest organisation such as ourselves it is often very difficult to raise money for our work.

Your contribution comes at a good time. We are about to fence off one colony of Placostylus from wild cattle and sheep. Your donation will be put towards this project. Please find enclosed a copy of our fencing proposal.

I would be grateful if you could pass on the thanks of our members to yours.

If there is any way in which we can help your society, please do not hesitate to let me know.

Best wishes

Andrew Jeffs (chairman)
Save Our Snails Society
Dept. of Zoology
University of Auckland
Private Bag
Auckland
New Zealand

SOME SPECIFICS ON SPECIES

George Karleskint, Jr.

[George Karleskint is Assistant Professor of Biology at Meramec Community College in St. Louis. Currently working on his PhD in Biology, he is also a well-known shell dealer (World Wide Sea Shells).]

All collectors at one time or another puzzle over the problem of species. Although we collect different species of shells, we are not always sure what it is we are collecting. Obviously a species should differ from its close relatives by one or more specific and recognizable characteristics, but, as more new species are named, we find that this is not always the case.

If we pose the question, "What is a species?" we find that the answer will differ depending upon whom we ask. To a biologist, species are groups of interbreeding natural populations that are reproductively isolated from other such groups, or more succinctly, an isolated gene pool (isolated by reproductive barriers). To a collector, species are different kinds of shells. To a dealer, species are different kinds of shells that can be sold at different prices. The criteria for species differs from group to group, from person to person.

Since we are dealing with living organisma, it is appropriate to follow the biological definition of species. Although the most accurate, this is also the most difficult to employ. We cannot tell whether a specimen we have in our possession will readily breed with another similar specimen simply by examining it, particularly if all we have is the shell, so we find ourselves falling back on the old tried-and-true typological concept of species. The typological approach is mainly morphological (concerned with shape and form). A new species is described, and a "type" specimen is deposited in a museum or other similar institution, so that other specimens can be identified from it by comparison. If other specimens match the characteristics of the type, then they are said to be the same species. If they do not match the type, within reason, then they are considered different species.

The obvious problem with this approach to species is that it does not allow for the variation that occurs in all natural populations. (A certain amount of variation is allowed, but this varies with the researcher and with the amount of population data available. Thus the point at which the species-line is drawn is usually quite subjective.) It is in the application of this concept that we run into trouble, and frequently a great deal of aggravation and frustration as well. Take, for instance, the human species, Homo sapiens. Except in the instance of identical twins, there are no two individuals exactly alike. Why must we then expect all other natural populations to be composed of only identical, or close to identical, members?

Let us imagine an expedition from Mars, sent to Earth to gather samples of the animals found here. They might collect a North American Caucasian, an Ubangi from Africa, and an Aborigine from Australia. If they approached classification as most of us do, they would undoubtedly name three different species. If on future collecting trips they brought back more humans, they would find a great deal of difference when compared to the original types; even though there were similarities, many of these new finds would probably end up as new species. We may think that this is a rather silly example, yet this is exactly what happens in the identification of many new molluscan species. We need look no further than the proliferation of Cone species by well known enthusuasts to see a parallel example in mollusks.

The problem is not a simple one, and neither is the solution. Many people working in molluscan taxonomy do not have the training nor the access to resources necessary to identify and name new species. Even among the professionals, there is a sizeable group who are paleontologists rather than biologists. Although they are very adept at making identifications and at deriving relationships from purely morphological information (the fossil record leaves little else to work with), they do not always take into account the natural variability and the capacity for constant change inherent in viable, living populations.

To identify and describe a new species requires a great deal of time and work, not only in researching the available material, but also in comparing "new" finds with other specimens in study collections (not in books). Too many amateurs, however, want to see their names in print, to have the distinction of authoring a new species or the status of having a shell named after them. In their quest for a kind of immortality, they rush into print with newly identified species which are poorly researched, and which add to the plethora of names already in use for existing species. That is not to say that all of the new species named for collectors are not valid species. Quite the contrary. Many are quite distinct, and are exciting new additions to the list of known mollusks. On careful examination, however, we usually find that these valid new species were carefully researched by qualified biologists (malacologists) associated either with a large museum or an educational institution. Their article was not a brief description published in an amateur or a conchological publication, but instead it was published in a recognized journal and frequently juried (that is, judged by a peer review group before being allowed in print).

Dealers are frequently no better, since many times a new name or variety means a higher price. Then too, many so-called new species are difficult to distinguish from existing species, the locality being the critical difference. This tempts the unethical dealer to simply change a shell's data in order to make it worth more to a potential customer. If dealers were more reluctant to adopt new species, especially those that seem questionable, their reluctance might influence collectors to investigate new proposals more thoroughly, and this, in turn, might discourage widespread acceptance of weakly proposed species. Lack of acceptance might then dissuade the more prolific species splitters from further endeavors, or at least slow the rate at which they describe new species.

The collector is the ultimate loser in the quagmire of new species. Some of us become very frustrated as names change and new species are introduced that are difficult to distinguish from existing ones. Does that extra bump, or the lack of a row of dots, or some other morphological distinction that is displayed as the crucial difference really make a new species, or is it simply a variation in a local population? Recall the human analogy. This frustration eventually grows into aggravation, and, in the worst scenario, disenchantment with our hobby because now, instead of relaxation, it only breeds irritation.

Then there are those of us who, in trying to collect an entire family, find that keeping up with the "latest species" requires a substantial investment, and ultimately we realize that only the very wealthy collectors will be able to exhibit a complete display. Even those of us who do not usually quibble with price find ourselves wondering just how different this new specimen is from similar shells already in our cabinets. Worse yet, if the new species is later determined to be a population variant of an existing species, and somewhat more common than previously thought, we may feel cheated by the dealer who sold us the shell originally, even though the dealer sold us the shell in good faith, and we willingly bought it. Fairly or not, we frequently feel that dealers should be more aware of these problems, and we hold them ultimately responsible, rather than the original author of the "new species." There is no question that these kinds of experiences can take much of the joy out of collecting.

One way to avoid these problems is to collect only the species that have been firmly established, or restrict our collections to self-collected specimens. Indeed, many of us have taken this route, and are not much affected by the "new" discoveries. Our problem with the species concept revolves around relationships among the specimens in our collections. Others among us still seek to expand our collections, and try to amass as complete and comprehensive a collection as possible. We are the collectors who are most likely to be affected by the proliferation of new species.

A simple solution is to let the job of molluscan taxonomy rest where it should, with the biologists. Even though the results are slow in coming (there are too few workers with too large a workload), at least the results will be worth waiting for, since they will be more reliable and less likely to change. A second solution is simply for us collectors to get "back to basics," and educate ourselves, not only in the shape and color of shells, but also the biology of the wonderful organisms that produce them. We are not dealing with static things here, but living, changing, adapting organisms, and the more that we know about the mollusks themselves, the less likely we are to be misled by all the new species, and the more enjoyment we will derive from our pursuit of collecting shells.

Reprinted from the Conchologists of
America Bulletin 15(1):15 March 1987

COA AT ST. LOUIS JUNE 23-27

The Greater St. Louis Shell Club will host the 15th annual convention of the Conchologists of America, Tuesday June 23rd through Saturday June 27th, at Days Inn at the Arch Hotel, 333 Washington Avenue, St. Louis, Missouri 63102 [phone: (314) 621-7900]. Room rates are reasonable: $52 + tax per room accommodating one to four persons. Hospitality suites also are available. Reservations should be made now.

An interesting and enjoyable program has been prepared, to include social activities , malacological sessions, an auction, and a dealers' bourse. Registration per person after June 1st = $30, which includes the reception and sessions with continental breakfasts. The dinner cruise on the paddlewheeler will be $24, walking tour $4, tour of the city $6. Pre-registration is desired. Mail checks payable to COA Convention to Bryan Thompson, Convention Treasurer, 5253 Parker Avenue, St. Louis, Missouri 63139. There is much to enjoy in St. Louis, the historic Gateway to the West, and the host club wishes to share it with you and extends a warm invitation to the entire shell world by saying, "Meet Me in St. Louis."

For further information, contact Alan Gettleman, 4045 Central Lane, Granite City, Illinois 62040 [Telephone: (618) 931-7374].

COA Bulletin 15(1), March 1987

AMU AT KEY WEST JULY 19-23

The 53rd Annual Meeting of the American Malacological Union will be held in Key West, Florida, from Sunday July 19th through Thursday July 23rd. Attendees at the meeting are encouraged to make their accommodations at the Casa Marina, as virtually no other accommodations are located within reasonable walking distance from the meeting site. Address: Marriott's Casa Marina Resort, Reservations Department, Reynolds Street on the Ocean, Key West, Florida 33040 [Telephones: (305) 296-3535 or, from outside Florida: (800) 228-9290]. Be sure to state that you will be attending the AMU Meeting and wish the convention room rate: $65 per night single or double occupancy. Reserve by July 1st.

Two symposia are planned. One will be on the biology of polyplacophoran mollusks, and has been organized by Dr. Robert Bullock. The second symposium will be on Cenozoic fossil molluscan communities of the Americas; organizers of that symposium are Dr. Emily Vokes and Dr. Lyle Campbell. The meeting will include sessions for contributed talks and posters, social activities, sight-seeing, and field trips. Fees: registration $50, banquet $30, nearshore marine field trip $10, Looe Key Reef for snorkeling with no collecting permitted $25, terrestrial and limited freshwater (no collecting at some stops) $10. Checks for registration and events should be made payable to the American Malacological Union and sent to William G. Lyons, President, American Malacological Union, 4227 Porpoise Drive, S.E., St. Petersburg, Florida 33705.

AMU News 18(1), March 1987

OUR NATIONAL MARINE SANCTUARIES

To date seven areas have been designated "National Marine Sanctuaries" in order to save certain unique, offshore ecosystems...not just as individual marine resources such as mammals or fish. Dr. Nancy Foster, Chief, U.S. National Marine Sanctuary Program, NOAA, writes: "We focus attention (on the selection of a site) both on the representative ecosystem approach and the species approach in the belief that by doing so, we contribute to conservation of biological diversity..." The current list of sanctuaries consists of:

KEY LARGO NATIONAL MARINE SANCTUARY — a 100-square-nautical-mile area off the Florida Keys encompassing a spectacular portion of the largest reef system off North America. Designated in 1975, this site receives hundreds of thousands of visitors every year to fish, skin and scuba-dive, and sightsee from glass-bottom boats.

LOOE KEY NATIONAL MARINE SANCTUARY — a 5.3-square-nautical-mile reef area located 6.7 miles offshore the lower Florida Keys. The site was designated in 1981 to protect a classic example of the Florida reef tract "spur and groove" formation. Like Key Largo, this reef is heavily used by skin and scuba-divers, fishermen, and boating tourists.

GRAY'S REEF NATIONAL MARINE SANCTUARY — a 17-square-nautical-mile area protecting a limestone outcrop supporting a rich community of sponges, soft and hard corals, tropical reef fish, and invertebrates. Gray's Reef, designated in 1981, rests in a transition zone between the warm Gulf Stream and more temperate coastal waters. Located 17.5 nautical miles offshore — in relative isolation — this remote site presents very different management problems from the "people-oriented" sites off Florida.

CHANNEL ISLANDS NATIONAL MARINE SANCTUARY — a 1252-square-nautical-mile area located off the southern California coast. Designated in 1980, this site supports one of the largest and most varied assemblages of marine mammals in the world. It also provides a refuge for one of the most diverse concentrations of pinnipeds (seals and sea lions) and includes the most extensive kelp beds still remaining in southern California.

POINT REYES-FARALLON ISLANDS NATIONAL MARINE SANCTUARY — a 948-square-nautical-mile area northwest of San Francisco. This site, designated in 1981, encompasses the wide variety of offshore and nearshore habitats characteristic of the northeastern Pacific. The seabird concentration is unique in the lower 48 states; whales, porpoises, and pinnipeds abound.

THE "MONITOR" NATIONAL MARINE SANCTUARY — a one-square-nautical-mile area surrounding the wreck of the historic Civil War ironclad, the U.S.S. "Monitor." This area, designated in January 1975, was the nation's first sanctuary. The historic vessel has several of the innovative designs that gave the "Monitor-class" a tactical advantage over conventional broadside warships. She is popularly credited with revolutionizingnaval warfare and saving the Union Navy during the famous battle of the ironclads off Hampton Roads in 1862.

FAGATELE BAY NATIONAL MARINE SANCTUARY — a 163-acre bay off Tutuila Island, American Samoa, and the most recent addition to the system (designated April 1986). The bay contains deepwater coral terrace formations unique to the high islands of volcanic origin in the tropical Pacific and offers an opportunity to investigate reef management problems such as crown-of-thorns starfish (Acanthaster) infestation.

There are also three active candidates currently under consideration for designation: (1) CORDELL BANK — a small bank located 20 miles offshore Point Reyes, California. Because of its location and unusual oceanographic conditions, Cordell supports an extraordinarily lush marine community. (2) FLOWER GARDEN BANKS — the northernmost tropical Atlantic coral reefs on the U.S. continental shelf. It is located 110 miles off Texas and Louisiana in the Gulf of Mexico, and (3) NORFOLK CANYON — a deep-water canyon approximately 60 nautical miles off the Virginia coast. Norfolk Canyon is the northernmost in a series of prominent undersea canyons along the eastern continental margin of the U.S. It features large tree corals and "pueblo villages," areas along the canyon walls that are pockmarked with burrows dug by invertebrates and some varieties of fish.

(The above listings were extracted from the article, "National Marine Sanctuaries — Saving Offshore Ecosystems," written by Dr. Nancy Foster, Chief, U.S. National Marine Sanctuary Program, and published in Sea Technology of November 1986, 27(11):25-29.)

MAIL FROM MOZAMBIQUE

From a letter to the New York Shell Club:

We are a statal enterprise working on investigation of the seashells on CABO DELGADO (province) coast, the North Province of the country. Also we are making some commercialization (trading for supporting our activities, small scale handcrafts, internal and external).

Our statal enterprise has some problems which are: We haven't books to consult a new species, we haven't other materials to use in our workplace. We are undeveloped and we don't have some conditions to find the books to consult. Our work depends on investigation and conclusions... My principal objective is (to obtain) some books because I don't know this subject and I want to study.

My cordially,
February 006th, 1987

CARLOS CELIANO ISAAC
WIMBI-CONCHAS DE MOÇAMBIQUE LDA.
P.O. BOX 7-PEMBA, MOÇAMBIQUE
AFRICA

HIGHLIGHTS OF THE FEBRUARY MEETING

President Ed Cowles reported on the reception with which the Staten Island Institute of Arts and Sciences recognized Mathilde Weingartner's years of service and her 80th birthday. Attendance was estimated at over 100, including five members of the New York Shell Club. Among the many gifts Tillie received were a proclamation from the office of the Staten Island Borough President and a large ink-and-collage drawing from, and by, Al Scarpetti.

Ed also reported that Dr. Leonell Strong, of Pound, Virginia, had donated 256 shells from his collection to the Club. Most are volutes, and they are valued at $5,000. Some will be offered at the April auction.

He then announced that Fred Cannon has invited the Club to hold its June meeting at his home. This will necessitate holding the election of officers in May. Fred has been appointed Chairman of the Nominating Committee.

Dr. Walter Jacobs noted that the American Museum is usually crowded on Sundays, and recalled that many years ago meetings had been held in Room 129, which is close to an entrance. He suggested that we request the use of this room again. Theta Lourbacos said she would approach Visitors Services with the idea. Dr. Jacobs also noted that a light-pointer would be useful during slide shows, and suggested that we try to find the one we used in the past, or if necessary buy one. Ed said that this will be done.

Ed displayed a Shell-of-the-Month — a keyhole limpet he had bought in Philadelphia 25 or 30 years ago. It is from Australia, but he doesn't know the species. Allen Aigen reported that he had slipped the Club's card into a number of books on nature subjects in the 42nd Street library, adding that others of us can do this in local libraries.

New member Eli Horowitz was introduced. He is a volunteer worker in the American Museum. The door prizes were: a _Cymatium pileare_, won by Eli Horowitz, and a Strombus bulla plus a Casmaria erinaceus won by Neil Landman.

The speaker was Neil Landman, of the Museum's staff, with his second presentation on his specialty — Nautilus. This time his slide show retraced a recent collecting trip to the Palau island group in Micronesia, under the sponsorship of the University of Hawaii and the Waikiki Aquarium. The bottom drops steeply to a depth of several miles off these islands, and Nautilus lives at depths to 1,500 feet. Using a wire-mesh cage-type trap, in which chicken proved to be the most effective bait, Neil's group had no trouble collecting all the specimens they wanted. Males, females and juveniles, he said, were usually found at different depths. The local people can't understand why crazy foreigners make such great efforts just to collect these creatures.

Neil noted that the Nautilus is the only living cephalopod that has an external shell, and that the shell protects it from harmful effects when it is brought from tremendous water pressure to atmospheric pressure rather quickly. The water they are kept in must be chilled, however, and they must be "burped" after having been handled out of water.

The Waikiki Aquarium hopes to breed Nautilus, using specimens supplied by this collecting trip. Hatching has never been seen, and none has been raised from an egg. They are believed to live about fifteen years.

Neil displayed shells of all five species of Nautilus, including the shell of the only N. stenomphalus collected live.

Showing photos of the Micronesian Marine Station, Neil reported that one of its current projects is an attempt to grow Tridacna for food.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE MARCH MEETING

President Ed Cowles introduced new members Rae Varga and Dan Gelerinter.

Theta Lourbacos noted that the American Littoral Society would sponsor a program in the American Museum on March 11th titled "The Marine World of Reef and Tidepool." She reported that an organization in Holland had inquired about the availability of back issues of New York Shell Club Notes. She also mentioned a note from Marie Sussman accompanying a letter addressed to the New York Shell Club and but recently received (Marie was our corresponding secretary 1978-82). The letter was from a "statal entreprise" in Mozambique, a group that is investigating the mollusks of Cabo Delgado Province and is in need of literature, presumably primarily for identification (See p.14 -Ed).

Theta reported that the collection of Voluta donated by Dr. Leonell Strong is in Fred Cannon's hands. Ed again noted that other donations will also be necessary to make up an adequate and balanced body of auction material.

Ed was the speaker of the day, a role he had assumed under emergency conditions when the scheduled speaker was forced to cancel. He spoke on the shells of West Mexico, where he has visited often. With the aid of slides he described some of his collecting sources, including jungle-bound pyramids where land snails can be found, local collectors who customarily sell some of their acquisitions, tidepools, etc. Along with his scenic slides were many of living chitons and gastropods, including cones, and of cleaned shells. Others showed women weaving cloth dyed purple with a liquid "milked" from a local rock snail (See: Snail Dyes in Oaxaca, NOTES 229.4, 231.3 -Ed).

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE APRIL MEETING

The 356th meeting of the New York Shell Club was an annual auction and social meeting held on April 12, 1987, at Dorothy Jensen's Broadway Dance Studio in Astoria, Queens.

Auctioneer Marty Gill was assisted by Sol Weiss, Fred Cannon and Scott Many in offering a fine array of shells, books, art work and other related materials.

Among the most noteworthy of the materials donated were seven drawings by Al Scarpetti. One of these sold for $105 and another for $70. A selection of volutes from the collection donated to the Club by Dr. Leonell Strong made up a high proportion of the shells on the table. Those that drew the highest bids were Voluta gilchristi, $30; two amphora, each $20; sowerby, $21; miltonis, $20; aurisiaca, $18; and hargreavesi with a model of the foot, $18.

Other outstanding items were Conus auratus, $50; floccatus, $22 and bullatus, $14; four Spondylus americanus were bid to $35, $30, $21 and $17, and S. gaederopus to $16. Murex cornucervi brought $26 and $10; M. bednalli $30; a large Busycon contrarium, $20, and Astraea heliotropum $16 and $14.

The sale table, under Walter Sage, was unusually busy. Through the afternoon, the bidders refreshed themselves with wine, punch, crackers, cheese, cold cuts, cookies and cake.

The door prizes were a sea fan (won by Nick Katsaras) and a Lambis lambis (Tillie Weingartner). The raffle prizes were a Spondylus americanus (Al Scarpetti), Scaphella junonia with model of foot (Milton Werner), a handsomely framed plate from an old shell book (Howard Israel), Abbott and Sandved's "Shells in Color," E. L. Bousfield's "Canadian Atlantic Sea Shells" (Scott Many), and a purple sea urchin (Carol Lindsay).

The last auction item was going, going, gone at 5:07 p.m.

Milton Werner, Recording Sec'y

HELIX ASPERSA IN THE NEWS — AGAIN

In NOTES 300.14,15 we reported on a fairly new industry in California -- raising snails (Helix aspersa Müller) for food, processing and marketing them as escargot. Now we have news that another entrepreneur in California, Ralph Tucker, is also in the snail business. Mr. Tucker founded the Snail Club of America about five years ago and for fees has been sending starter batches of snails, with instructions on raising them, to how many unsuspecting areas we do not know. One such area is Kill Devil Hills, North Carolina; a reporter writes of Allen Cromwell as only one of a handful of people on the East Coast to raise escargot and he hopes that within the next three or four years to have a million of the mollusks, enough to establish a full-fledged escargot farm. However, his

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #200
New York, N.Y. 10025
212-866-1298

Directors: **FRED CANNON, MARY ANNE BASTEK, WALTER SAGE,** AL SCARPETTI

Editor: DOROTHY **RAEIHLE, 211 Milligan Rd., West Babylon, N.Y.** 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1987-88

The second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April meeting which is a combined auction/social. The Museum is at Central Park West and 79th Street, New York City.

Sept. 13, 1987
Oct. 11, 1987
Nov. 8, 1987
Dec. 13, 1987
Jan. 10, 1988
Feb. 14, 1988
March 13, 1988
April 10, 1988
May 8, 1988
June 12, 1988

On meeting days Room 419 will be open at 1:30 P.M. This will provide time before the formal meeting to consult with others on one of your 'problem shells', to suggest programs or activities for N. Y. Shell Club, glance at recent publications, or just visit with new and old friends.

Dr. Donald T. Bosch

Dr. Donald T. Bosch became a corresponding member of the New York Shell Club in May, 1962 - 25 years ago - when his address was: American Mission Box 11, Muscat, Oman, Arabian Gulf. During periods when he was on leave, we might catch an infrequent glimpse of him.

At the 1981 meeting of the American Malacological Union, Dr. Bosch captivated his audience with his illustrated talk on shell collecting in the Gulf of Oman, the subject also of New York Shell Club's coming September meeting.

The next time we saw Dr. Bosch was on television. On October 21, 1983, Channel 13 ran a documentary on "Oil Kingdoms" with the chapter "The Petrodollar Coast" including an interview with Dr. Bosch in his office at the hospital concerning his development of the medical facilities in this corner of Oman.

We wish Dr. Bosch a happy retirement and are very pleased to have him visit us.

Sincerely,

Dorothy Raeihle

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. We are pleased to announce the following programs:

September 13, 1987: SHELLING EXPERIENCES IN OMAN

Dr. and Mrs. Donald T. Bosch will be our guests at this meeting. Dr. Bosch's presentation is exceptional. Don't miss it! **(see Page 20)**

October 11, 1987: AN INTRODUCTION TO MOLLUSCAN NATURAL HISTORY

Dr. Robert Robertson, eminent malacologist of the Academy of Natural Sciences of Philadelphia, will be our guest speaker. He is expert at imparting information with understanding. Don't miss this opportunity to hear him!

November 8, 1987: SHELLS OF WEST MEXICO

A presentation by Avis Sosa, who will show results of shelling in this out-of-the-way area.

CONTENTS

		Page
A "Thank You"	Theta Lourbacos	2
New York Shell Club Pins	Theta Lourbacos	2
Obituary: Eliseo Duarte		2
Obituary: A. W. B. Powell		2
Highlights of the May Meeting	Milton Werner	3
Highlights of the June Meeting	Milton Werner	3
Coming Events	(A compilation)	4
Methane Subsisting Mussels Found in Gulf of Mexico	Sea Technology	5
Neptunea decemcostata Mass. State Shell	Boston Malacolog. Soc.	6
Cross Florida Barge Canal Deauthorized	Animal Kingdom	6
Mott Basin Wetland Saved	Coastal Reporter, ALS	6
To Spare Cove, They Call it "Park"	NY Daily News	6
How Do You Spell Relief?	Center Envir. Education	7
Ohio's Endangered Species	Ohio Division Wildlife	7
Update Indo- & E. Pacific Affinities	Donald R. Shasky	8
Shell Hunters (Caribbean)	New York Times	8
Important Announcement	The Crosse Foundation	9
Champion Clams of Florida	Harry G. Lee	10
A Correction	Dorothy Raeihle	11
REVIEWS of two audio cassettes: Exploring Collectible Shells, and Say It Right. By R. Tucker Abbott	George Raeihle	12
Changes at San Diego Nat. Hist. Museum	The Festivus	13
AMU and WSM Resolutions to SDNHM	The Festivus	14
Venus mercenaria	From DeKay, 1843	14
Unlocking the Mysteries of *Mercenaria* by Michael Arthur & David Allard	Maritimes (Univ. R.I.)	15
Obs. on Longevity of *M. mercenaria* by Richard Lutz & Harold Haskin	Journ. Shellfish Res.	18
COA 15th Annual Convention	Walter E. Sage	18
Compendium of Seashells, 3rd printing	Walter E. Sage	19

A BELATED 'THANK YOU'

The names of Arlene and Hans Reimann should be added to the list of those who contributed to our 1987 Shell Club Auction and Social. Their contribution of shells and books is much appreciated and we apologize for inadvertently omitting them from the list of contributors which appeared on page 19 of NOTES No. 303.

Theta Lourbacos

NEW YORK SHELL CLUB PINS

A new supply of Club pins has finally been received and may be obtained at a meeting or by mail.

The pin was designed by our artist members Leonardo Hernandez and George Raeihle. It is a gold-rimmed, blue enameled pin about an inch in diameter on which is a buff-colored shell depicting Busycon canaliculatum outlined in gold, as are the white letters NYSC.

The cost of the pin is $3.00 if purchased at a Shell Club meeting, $3.25 if ordered by mail. Checks should be made out to New York Shell Club. Mail orders should be sent to Theta Lourbacos, Treasurer, New York Shell Club, 66 West 94th Street, Apt. 20C, New York, New York 10025.

Theta Lourbacos

ELISEO DUARTE
1896 - 1987

Word has reached us from Montevideo, Uruguay, of the death in June of Eliseo Duarte, eminent malacologist of the Museo Nacional de Historia Natural in Montevideo, who contributed to the sciences for well over half a century.

We send condolences to his family and to his many friends and associates of the Sociedad Malacológica del Uruguay.

(A brief biography appears in the 1987 Register of American Malacologists, page 37.)

dr

A. W. B. POWELL

Dr. Arthur William Baden Powell, Hon. D.Sc., F.R.S.N.Z., internationally recognized authority on New Zealand shells, died in New Zealand on July 1st, aged 86 years.

His most widely known work is probably Shells of New Zealand; its 5th revised edition was published in 1976. The jacket of this edition carries a brief biography, as follows:

> Aucklander Arthur W. B. Powell, after art training, a 15-shilling-a-week printing apprentice job and free-lance commercial art work during the 1920s, became the Auckland Museum's Conchologist and Paleontologist. It was the beginning of a long and distinguished career at the museum — he retired as Assistant Director in 1968, then to work with them as Honorary Research Associate in Mollusca. He became a Fellow of the Museums Association and the Royal Society of New Zealand, and received the Hector medal and an honorary doctorate from the

University of New Zealand for his researches on the New Zealand molluscan fauna.

Conchology has taken him throughout New Zealand, to the Chathams, to the Three Kings Islands with the deep-sea DISCOVERY expedition, to the Kermadec Trench with the famous Danish GALATHEA expedition and to museum and field studies in Australia, the Philippines, New Guinea, Hawaii, the United States, the British Museum in London, and the Welsh National Museum in Cardiff.

Dr. Powell wrote scores of papers for scientific journals plus his books — his New Zealand Mollusca, Marine, Land and Freshwater Shells was published in 1979, and his earlier Native Animals of New Zealand sold over 100,000 copies.

Our sympathy is extended to his family, friends and associates in their loss.

(British publications)

HIGHLIGHTS OF THE MAY MEETING

The annual election of officers was moved from June to May of this year because the June meeting would be a social one at Fred Cannon's home. A call by President Ed Cowles for nominations from the floor brought no response, so he asked for a motion that the secretary be empowered to cast one ballot for the re-election of all officers and directors. Such a motion was made, approved and carried out.

Ed expressed appreciation to those who had contributed, by donation and work, to the success of the NYSC auction in April. He also drew attention to a letter from the Save Our Snails Society, based at the University of Auckland, New Zealand, acknowledging with thanks the Club's contribution toward the effort to protect the flax snail, Placostylus ambagiosus. He also introduced visitors Gil Williams, a former member now living in Panama, and Susan Hammelstein.

Walter Sage announced the coming meeting of Conchologists of America.

The door prizes were a Murex scolopax, won by Gil Williams, and a Cypraea decipiens, won by Bernard Kinsey.

The speaker was Marty Gill, who described a sightseeing and collecting trip to Molokai, Hawaii. His excellent slides included air views, and close-ups of plants, birds and shells. He noted that the cannibalistic snail Euglandina had been introduced to Hawaii to eat the destructive Achatina, but that it had done more damage to the endemic species. Marty's final slides showed the leper colony formed by Father Damien, which he described movingly, and a series of beautiful sunsets.

Al Scarpetti suggested, for the fall, a program made up of displays by members of their favorite shells, and the possibility of a trip to the Delaware Museum of Natural History. Both ideas will be followed up.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE JUNE MEETING

The June meeting of the New York Shell Club was a social gathering held, by the invitation of Fred Cannon, at his home. This was the second time Fred had played host to Club members in his beautiful brownstone, on Warren Street in the historic Cobble Hill section of Brooklyn.

Fred had again arranged a display of many of his magnificent shell specimens, in addition to those in his glass-front cabinets and those accessible in drawers.

About twenty members took advantage of the opportunity to admire the shells and to socialize over wine, iced tea and snacks.

Milton Werner, Recording Sec'y.

COMING EVENTS

1987 September 18 - 20	Crown Point Shell Show, THE SPELL OF THE SHELL, Southlake Mall, at I-65 and U.S. Rt. 30, Merrillville, Indiana. Contact: Judy Brooks, 12109 Kingfisher Road, Crown Point, Indiana 46307. (219) 663-2700.
September 26 - 27	Guam International Shell Fair, Agana, Guam. Contact: Guam Shell Club, P.O. Box 7867, Tamuning, Guam 96911.
October 2 - 4	Panama City Shell Show, Panama City, Florida. Contact: Robert C. Granda, 925 Rosemont Drive, Panama City, Florida 32405. (904) 769-2876.
October 23 - 25	North Carolina Shell Show, Wilmington, North Carolina. Contact: Dean Weber, 510 Baytree Road, Wilmington, North Carolina 28403. (919) 799-3125.
October 31	British Shell Show, London, England. Contact: Geoff Cox, 7 King John's Road, North Warmborough, Oldham, Hants., RG25 1EE, England.
November 5 - 8	SPECIATION, An International Symposium Celebrating the 175th Anniversary of the Academy of Natural Sciences. For information or submission of papers, contact: Dr. George Davis, Symposium Committee, Academy of Natural Sciences of Philadelphia, 19th and The Parkway, Philadelphia, Pennsylvania 19103. (215) 299-1132. Accommodations: A special symposium rate of $45 is available at the Center City Quality Inn, 501 North 22nd St., Philadelphia, PA 10130. (215) 568-8300. Reservations must be made by October 1st, 1987.
1988 January 4 - 8	The World Aquaculture Society will meet in Honolulu, Hawaii. The theme of the meeting is EAST MEETS WEST. In addition to technical sessions, the program will include a symposium and special sessions on nutrition, product quality and marketing. For information, contact: Nancy Hadley and John Manzi, Marine Resources Research Institute, P.O. Box 12559, Charleston, South Carolina 29412. (803) 795-6350.

(Schedules from Donald Dan, ANSP,)
(& National Shellfisheries Assoc.)

April 29 - May 1	The Long Island Shell Club's Shell Show at the Freeport, New York, Recreation Center. Contact: Vi Greenlaw, 5 Etna Lane, Dix Hills, New York 11746. (516) 421-5235.

METHANE-SUBSISTING MUSSELS FOUND IN GULF OF MEXICO

Detailed studies of a variety of mussel dredged from deep beneath the Gulf of Mexico last winter confirm that it can subsist solely on methane, the main ingredient in natural gas, according to James J. Childress, professor of zoology at the University of California, Santa Barbara.

The shellfish thrive on this unorthodox diet because they have evolved a novel and mutually beneficial relationship with methane-eating bacteria living in their gills. "This is a totally new type of symbiosis," Childress explained. He reported the results of the latest detailed analyses of this unique relationship at the annual meeting of the American Association for the Advancement of Science.

The initial evidence that these undistinguished looking mollusks have such novel eating habits was reported by Childress last September in the journal Science.

A decade ago, sunlight was considered the sole energy source for virtually all higher life forms on Earth. But researchers exploring the deep-sea floor off the Galapagos Islands in the eastern Pacific in 1977 discovered luxuriant oases of marine life in total darkness where none should have existed. Subsequent studies demonstrated that the undersea animals there thrive because they have developed a symbiotic relationship with bacteria that metabolize the plentiful sulfide in the vent waters.

"There are free-living bacteria that feed on other chemicals in the marine environment, so we and a number of other people began looking for deep-sea animals that might rely on them," said Childress. Of these, methane-eating bacteria were considered the most likely. But hydrogen, iron and manganese are other chemicals upon which such bacteria feed.

As a result of these efforts, marine scientists found a number of other marine animals that subsist on a sulfide diet. But the mussels were the first creatures found with a proven ability to consume methane. The unusual shellfish — varying in size from one and one half to six inches — were discovered 240 kilometers off the Louisiana coast during a cruise last winter. They come from undersea communities similar to those discovered around the hydrothermal vents, but which appear to be centered around undersea oil seeps at depths ranging from 550 to 640 meters.

"Potentially, methane symbiosis is the cleanest way of making food. The animals take in methane and oxygen and give off carbon dioxide," Childress stated. Unlike the sulfide feeders whose flesh is bad tasting, the scientist reports methane-grown mussels taste "sweet and delicious."

Sea Technology 28(6):57, June 1987

NEPTUNEA DECEMCOSTATA DESIGNATED OFFICIAL SHELL OF MASSACHUSETTS

In the June 1987 issue of their newsletter, the Boston Malacological Society announced that "Governor Michael Dukakis has affixed his signature to House Bill #4863 designating the New England Neptune as the official shell of the Commonwealth." Our congratulations!

CROSS FLORIDA BARGE CANAL DEAUTHORIZED

Tucked away in the massive Water Resources Development Act of 1986 is a ruling that has gladdened the hearts of conservationists in Florida and elsewhere — the deauthorization of the Cross Florida Barge Canal. Called "a boondoggle of multimillion-dollar proportions," the canal was designed by the U.S. Army Corps of Engineers during the 1940s to provide a convenient commercial and recreational water route across northern Florida from the Atlantic Ocean to the Gulf of Mexico. Plans included using an existing dam in the Withlacoochee River Valley and building two dams and two reservoirs in the Oklawaha River Valley. The canal would have spoiled 36 miles of the Oklawaha River — the largest of Florida's canopied rivers — because that was the cheapest route.

Construction on the canal began at Yankeetown, on the west coast, in 1964. Five years later, citizens concerned about the effects of dredging, channelization, and other activities on the Florida aquifer — upon which many cities depend for water — and on the hardwood swamp forests, hammocks, marshes, and prairies of the Oklawaha River ecosystem Florida Defenders of the Environment. By that time, the Rodman Dam and reservoir had been built, altering 16 miles of river. Spearheaded by its president, Marjorie Carr, FDE obtained a court injunction against further canal construction in 1971 and prevented the imminent loss of a 20-mile stretch of the Oklawaha River from Eureka to Silver Springs.

The current deauthorization bill allows the dam to remain, as well as other structures already in place. FDE plans to launch a major education campaign to have the dam removed and to restore the Oklawaha River to its free-flowing state.

Compiled by Deborah A. Besch; reprinted from New York Zoological Society's ANIMAL KINGDOM 90(3):51

MOTT BASIN WETLAND SAVED

New York City Audubon's two and a half year battle to preserve the Battery Road wetland on eastern Jamaica Bay's Mott Basin has ended in victory. The New York City Public Development Corporation has cancelled the proposed sale and development of the wetlands (for a scrap metal recycling plant) and will make the wetlands available for inclusion in the New York City park system. Don Riepe, American Littoral Society's New York chapter person, provided major assistance to NYC Audubon on this project.

ALS COASTAL REPORTER, May 1987.

TO SPARE COVE, THEY CALL IT PARK

A proposal to set aside 44 acres of wetlands in College Point for use as parkland, to prevent the purchase by developers, was resoundingly approved by Community Board 7 to the cheers of community residents. The board's approval of the park designation for the property in Powell's Cove came just before the board's unanimous rejection of an application for the construction of townhouses near the cove.

The New York City Planning Commission and the Parks Department must approve the designation as parkland. The outlook appears favorable.

Stewart Ain in NY Daily News, June 24, 1987

The following article is reprinted from the May 1987 CEE REPORT of of the Center for Environmental Education:

HOW DO YOU SPELL RELIEF?

MONROE COUNTY, that's how! On February 17, Monroe County, Florida appropriated funds for 60 public mooring buoys to be installed near coral reefs by Reef Relief, a Key West conservation organization.

Reef Relief is dedicated to reef preservation and the Center for Environmental Education (CEE) has been working with them since 1986 to protect Florida's reefs from damage inflicted by boat anchors and careless divers. Boats often drop anchor right in the reef structure, causing irreparable harm. Mooring buoys allow boats to stop and tie up over the reef without having to drop anchor.

The 60 mooring buoys will be installed at the most heavily trafficked reef sites, allowing visitors to moor right above the spectacular underwater scenery while protecting the reef's fragile coral structures.

As part of the agreement between Monroe County and Reef Relief, the conservation group will provide maintenance for all county-purchased buoys until the year 2007. The county may provide more funding for buoys or maintenance in the future.

CEE is also sponsoring the installation of mooring buoys. For information on our Adopt-a-Buoy project contact Marydele Donnelly at CEE's Washington, DC office.

This summer (1987), Reef Relief plans to hold a special week-long fund-raiser to pay for buoy maintenance and the production of educational materials. Area merchants and businesses have donated both goods and facilities to further the cause of "coral consciousness." If you plan to be in the Key West area this summer, you may want to stop by. Contact Reef Relief for more information: (305) 294-1891.

Lee Hallman in Central Florida
Shell News 8(1):8, June 1987.

OHIO'S ENDANGERED SPECIES — SAD STORY

Dorothy Germer sent us the list of species classified as endangered by Ohio's Division of Wildlife. The list is of 4 mammals, 7 birds (eagle to warbler), 3 reptiles, 5 amphibians (salamanders), 27 fish (Lake sturgeon to darter), and the following 16 mollusks:

Cob shell	Quadrula cylindrica
Club shell	Pleurobema clava
Ohio pig-toe	Pleurobema cordatum
Fan shell	Cyprogenia stegaria
Orb mucket	Lampsilis orbiculata
Ridged pocketbook	Lampsilis ovata
Yellow sand shell	Lampsilis teres
White cat's paw	Epioblasma sulcata perobliqua
Northern riffle shell	Epioblasma rangiana
Simpson's shell	Simpsonaias ambigua
Fragile heel-splitter	Potamilus laevissimus
Nodule shell	Quadrula nodulata
Monkeyface	Quadrula metanevra
Bullhead	Plethobasys cyphysus
Butterfly	Plagiola lineolata
Long-solid	Fusconaia maculata

UPDATE ON MOLLUSKS WITH INDO-PACIFIC FAUNAL AFFINITIES IN THE TROPICAL EASTERN PACIFIC - PART V

by Donald R. Shasky of Redlands, California, in The Festivus of June 11, 1987, XIX(6):48-50.

Dr. Shasky announces that "Three additional species are now added to the list of Indo-Pacific mollusks found in the tropical eastern Pacific, and a southern California species is recorded for the first time in the Indo-Pacific." They are:

Streptopinna saccata (Linnaeus, 1758), East Africa to eastern Polynesia. Dead specimen found in 27 meters at Roca Sucia, Cocos Island, Costa Rica, on April 23, 1986.

Herviera gliriella (Melvill and Standen, 1896). Previously recorded only from Loyalty, Line, Hawaiian and Midway Islands. Now in Mexican waters: Jalisco, 1968, off Isla Partida, 1975, and Isla Ballena, 1982 in depths from 8 to 17 meters; from three sites at Cocos Island, Costa Rica, 1983-85 in depths 12 to 37 meters.

Vanikoro acuta (Récluz, 1844), described as *Narica acuta* from specimens taken by Hugh Cumings. Cited as from Hawaii, the Tuamotus, Lord Hood Island and the Moluccas. Numerous dredged specimens from depths of 100 to 300 meters at Cocos Island, Costa Rica.

Amphithalamus inclusis Carpenter, 1864, described from southern California. "In early October 1985, while snorkeling on the north side of Sand Island, Midway Islands, I found two specimens of *A. inclusis* in siftings of dead coral. This is the first record of this taxa in the Indo-Pacific."

SHELL HUNTERS

QUESTION: Can you help our small group of shellers? We are looking for a place in the Caribbean where we can find seashells while walking on the beach. — N. R., Mexico, MO.

ANSWER: Vacationers are likely to find shells on beaches on many Caribbean islands, but there are a few spots that have been praised particularly by visitors. Among them are Cane Garden Bay on the north shore of Tortola in the British Virgin Islands, St. Lawrence Beach on the south shore of Barbados and Knip Bay on the Dutch island of Curaçao.

Among the French islands, the beach called Petite Anse de Galer near Gustavia on St. Barthélemy has long been a favorite for shellers. Martinique has a shell museum near the resort area of Pointe du Bout with intricate displays representing local customs and pastoral scenes made of shells. Many shells are found on beaches on the south side of the island. Strollers and snorkelers on St. Eustatius have found, aside from shells, cobalt blue beads that were used for trading in the 18th century. Some people dig for the five-sided beads, which were made in the Netherlands, in the Crook's Castle area.

Stanley Carr in the Travel Section
of the New York Sunday Times.
Contributed by Ed Dunlap.

IMPORTANT ANNOUNCEMENT

Early in 1986 I discussed with some colleagues the idea of forming an organisation to promote the study of the history of malacology, recent and fossil. Having acquired an extensive collection of archival material in recent years it seemed advisable that its existence should be more widely known. Also it seemed a good idea to increase it and to make it more widely available.

The bulk of the material already in my possession was acquired from the heirs of the Fischer family in 1982 and is especially rich in correspondence addressed to the French malacologist Hippolyte Crosse, for many years the Director of the Journal de Conchyliologie. For this reason it seems appropriate to designate my collection of archival material the Crosse Foundation.

Although my holdings are already extensive I intend to augment them as much as possible so that they will eventually comprise a treasury of information vital to the study of malacological history. Because it is certain that much valuable material has already been destroyed it is important that surviving materials should be saved for posterity.

The kind of materials I seek are often of an ephemeral nature and include letters, original manuscripts and drawings, portraits, photographs, notebooks, diaries, auction-sale catalogues, price lists of books and shells, obituaries, biographies, bibliographies, shell-club journals and personal memoranda including taped recordings of the human voice.

For obvious reasons I shall be unable to accumulate such materials unaided. Consequently, I appeal to anyone who can help to achieve this objective to contribute to the holdings of the Foundation. All contributions will be gratefully received and, if of value, paid for and acknowledged in an annual report.

The Crosse Foundation has been officially established during the ninth international malacological congress, Edinburgh, September 1986.

The undermentioned individuals have already joined the Board of the Crosse Foundation: S.P. Dance, Folkestone; R. Tucker Abbott, Melbourne; R.E. Petit, North Myrtle Beach; J. Knudsen, Copenhagen; A. Solem, Chicago; Philippe Bouchet, Paris; Jürgen Jungbluth, Neckarsteinach and Ronald Janssen, Frankfurt am Main.

I intend to make the materials thus accumulated available to anyone engaged in research into the history of malacology. If material accumulates in sufficient quantity I should like to put out occasional publications on various aspects of malacological history. It would be interesting, for example, to make a catalogue of price lists of shells or reproductions of specimen labels written by various malacologists. Meanwhile, merely by sending me a personal photograph, signed and dated, you would be making a useful contribution.

If you have material to send or to sell or would welcome further information about the Crosse Foundation please write to me at the following address:

The Crosse Foundation
Dr. W. Backhuys
Warmonderweg 80
2341 KZ Oegstgeest
The Netherlands

CHAMPION CLAMS OF FLORIDA

by Harry G. Lee
Jacksonville, Florida

Our state has an uncontested champion gastropod in its State Shell, the Horse Conch (Pleuroploca gigantea), which approaches two feet in length. One wonders, on the other hand, how Florida conchologists would respond to the hypothetical query: "What is the state's largest clam?" Would it be the Campeche Quahog (Mercenaria), paired shells of which have exceeded six pounds in weight; the bantam weight foot-long Pen Shells (Atrina spp.); or the Geoduck (Panopea bitruncata), the soft parts of which dwarf the five to eight inch shells and can span a three-foot burrow? The list should not stop there! Consider Boykin's Washboard, our longest and most ponderous pearly freshwater mussel; it deserves at least contender status.

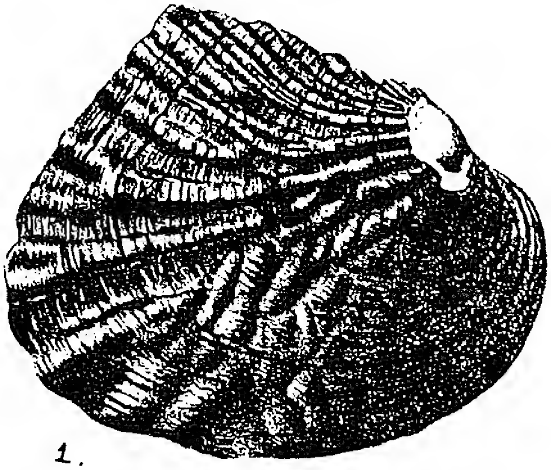
The recent unseasonably low stage of most Florida rivers has lured mussel collectors, two-legged ones especially, into the field — the streams of the Florida Panhandle being a special attraction. On June 14 and 15 such an expedition by Henry McCullagh and the writer discovered mussel beds which for years had been in too deep or too treacherous a situation (or both) for collecting at several stations along the Ochlocknee, Appalachicola, and Choctawatchee Rivers. This report deals with giant specimens of three naiad species collected among dozens of mature shells under such propitious conditions a short distance below the Jim Woodruff Dam, near Chattahoochee, Gadsen County, Florida. This dam is the point of origin of the Appalachicola River, at the confluence of the Flint and Chattahoochee on the Florida-Georgia border.

A review of the naiad literature indicates that these shells are big enough to demand the attention of any serious conchologist. Heretofore the largest specifically-recorded sizes of most Florida naiads were those of Clench and Turner (1956) although Bill Heard (1979) suggested, through his scaled illustrations, somewhat greater dimensions for a few species. The following shells are in the writer's collection:

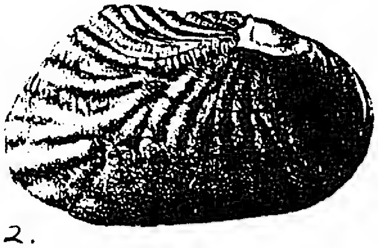
SPECIES	GREATEST LENGTH (& Dry Wt.) Clench & Turner	Nobis	% Greater
1. Megalonaias boykiniana (Lea, 1840)	168 mm	216 mm (3 lbs.)	29
2. Elliptoideus sloatianus (Lea, 1840)	149 mm	205 mm (1 7/8 lbs.)	38
3. Amblema neisleri (Lea, 1858)	84 mm	115 mm	37

The shells of Boykin's Washboard (No. 1) rival those of its giant marine cousins when one considers both length and weight of the empty shells — heavier than the Pen Shells and Geoduck; longer than the Quahog and Geoduck. In one less hypothetical comparison this mussel (and many others; see illustrations) surpasses the saltwater competition — sheer beauty!

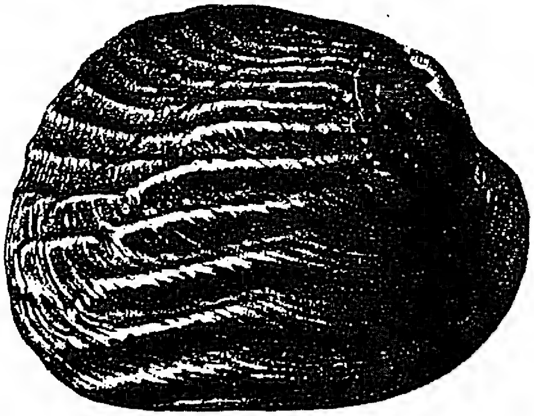
(See page 11⟶)



1.



2.



3.

Three species of freshwater mussels
from the Appalachicola River:

1. Megalonaias boykiniana (Lea, 1840).
2. Elliptoideus sloatianus (Lea, 1840).
3. Amblema neisleri (Lea, 1858).

Literature cited:

1. Clench, W. J. and R. D. Turner (1956. Freshwater mollusks of Alabama, Georgia, and Florida from the Escambia to the Suwanee River. Bull. Florida State Museum, Biol. Sci. 1:97-239.

2. Heard, W. H. (1979). Identification Manual of the Freshwater Clams of Florida D.E.R., Tallahassee. 83 pp incl. 88 fig.

3. Illustrations taken from Lea, I. (1834-1874) Observations on the Genus Unio.... Privately published, Philadelphia.

Reprinted from The Shell-O-Gram 27(6):3-4
Newsletter of the Jacksonville Shell Club

A CORRECTION

In the December 1986 issue of NYSC NOTES No. 301, page 12, line 3 of the second paragraph of the article, Update on Corbicula in Long Island Waters, for Bellmont Lake, read Bellmore Lake. PLEASE correct your copy.

Dorothy Raeihle

REVIEWS:

NEW: Two audio cassettes by R. Tucker Abbott:
EXPLORING COLLECTIBLE SHELLS and SAY IT RIGHT

Meet Tucker Abbott! The cassette tape, EXPLORING COLLECTIBLE SHELLS, brings to life his full color guide book, COLLECTIBLE FLORIDA SHELLS (see NYSC NOTES 293.7, December 1984).

Here is Dr. Abbott "in person" talking to you; it is a private session taking you through the book page by page, commenting on each shell. It is a clean, crisp, perfect quality recording of his voice in which he adds much interesting commentary and information to that in the pages of the book.

There are many species about which he tells: where they live, where to find them, how they feed, includes descriptions of egg strings or capsules and some biology. Identification differences are pointed out as well as suggestions for pronouncing the Latin names. He tells of the origin and meaning of a number of shell names, and names those shells officially adopted by a few of our United States.

Edible species are mentioned, and some of his favorite recipes — which we hope will not encourage overcollecting of the less abundant of the species named.

There are a few late changes and corrections: He notes that the genus Morum (pages 5 and 35) has recently been put in Harpidae, from Cassidae, and that Distorsio (page 8) is now placed in the Ranellidae, from Cymatidae. He also corrects a typographical error on page 53 lower left, where the caption should read Laevicardium laevigatum.

We highly recommend this lively, informative discussion of shells and shelling which you will play many times, reviewing different sections.

The 90-minute stereo cassette, EXPLORING COLLECTIBLE SHELLS, plus a copy of the 6" x 9", 64 page, full color book COLLECTIBLE FLORIDA SHELLS, is only $12.95 postpaid. If you already have the book, the cassette alone is $8.95 postpaid. Order from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Their telephone: (617) 721-2402.

* * *

SAY IT RIGHT
How to pronounce scientific shell names

This 35-minute stereo tape (17 minutes each side) is a clear, crisp, deliberately enunciated recording of 1,250 scientific names of seashells from both sides of the United States and Canada.

Dr. Abbott remarks that actually there are no correct or official pronunciations of these names; the pronunciations he uses are those customary among most American malacologists and advanced conchologists — and even these may vary throughout the country.

The generic and species names are read from the index of the 1986 revised edition of the Golden Press SEASHELLS OF NORTH AMERICA. A little folder in the cassette box has an index and counter guide to the major genera, 100 glossary terms, and family names.

From Acanthina to Zirfaea, Dr. Abbott clearly enunciates the Latin names, following the index, then adds some authors' names (among others, "Gmelin"), molluscan family names, and both gastropod and pelecypod terms.

Many names are pronounced as you would expect them to be, but there are a number of differences in the syllabic accents and the use of soft and hard consonants and long or short vowel sounds. A few may surprise you, such as Gemma gemma, with the "G" as in "Go" and not as in the English "Gem."

In conclusion he mentions a few of the most commonly mispronounced names, then says, "Have fun ... saying 'Conk,' not 'Contsch,' and let the scientific names roll off your tongue like an expert!"

The 35-minute stereo tape, SAY IT RIGHT, is $7.90 plus $2.10 for shipping. The package of the cassette plus the book, SEASHELLS OF NORTH AMERICA, 1986 revised edition, is $19.95 postpaid. Order from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Telephone: (617) 721-2402.

If you do not have a stereo tape machine, the tapes also play perfectly on any monaural, as it does on our old, small Emerson player.

George Raeihle

CHANGES AT THE SAN DIEGO NATURAL HISTORY MUSEUM

The San Diego Natural History Museum has announced the hiring of Dr. Richard C. Brusca, of the Los Angeles County Museum of Natural History, who will take the newly created Joshua L. Baily Chair as Curator of Marine Invertebrates. The announcement indicated that this has been made possible by the Joshua L. Baily estate. In addition, the Museum has agreed, at Dr. Brusca's request, to provide a full-time, permanent, salaried collections manager for the Marine Invertebrates Department These events have resulted in the phasing out of all part-time paid employees in Marine Invertebrates. The initial phase was the termination of Curatorial Assistants Carole M. Hertz and Barbara W. Myers and Secretary Theo. H. Fusby as part-time paid employees effective July 1, 1987. The second step is the elimination of Anthony D'Attilio's part-time position at the Museum effective October 1, 1987. Anthony D'Attilio joined the Museum as a part-time employee in 1969 during the tenure of Dr. George E. Radwin and has been Acting Curator of the Department for a number of years. Mr. D'Attilio and his associates have been encouraged to continue to utilize the Museum's facilities in an informal and purely research capacity.

Dr. Brusca, who has written extensively on the invertebrate faunas of the eastern Pacific and whose primary area of expertise is in marine isopods, assumes official responsibility for the Department on September 1, 1987. Since more than 99 percent of the Department's current collection is molluscan, it is hoped that the Museum and Dr. Brusca will see fit to hire a malacologist as the collection manager.

The changes at the SDNHM are of great concern to all U.S. malacologists and have prompted resolutions from the major malacological organizations in this country — the American Malacological Union and the Western Society of Malacologists. Copies of these resolutions with the letters sent were received by The Festivus. They are printed below (see next page —Ed.) with the resolutions.

THE FESTIVUS XIX(8):74, August 13, 1987

U.S. MALACOLOGISTS SPEAK OUT

Outraged and dismayed at the emasculation of mollusk facilities belonging to the San Diego Museum of Natural History, despite recent large benevolent gifts, the members of the American Malacological Union voted at their July annual meeting in Key West to send the following petition to the San Diego Museum's Board of Trustees:

> Whereas the American Malacological Union, a 56-year-old society of over 600 professional and private malacologists, is concerned about the welfare of its science and the centers of malacology research in the Americas, and
>
> Whereas the San Diego Society of Natural History and its Museum of Natural History have been a major center for mollusk collections and malacological research for the last 75 years, and
>
> Whereas major contributions in collections and funds by Herbert N. Lowe, E. P. Chace, A. M. Strong, Joshua L. Baily Jr., and others have made possible San Diego's continuing leadership in this major taxonomic field, particularly vital to the development of Pacific Coast science,
>
> We, the members of the American Malacological Union, respectfully request that the Board of Trustees continue to support malacology by staffing their museum with a professional Ph.D. malacologist well versed in the modern methods of the taxonomy, systematics, biology and collection curation of mollusks.

(Reported by R. T. Abbott)

FROM THE WESTERN SOCIETY OF MALACOLOGISTS

> The Western Society of Malacologists regrets the decision of the San Diego Natural History Museum to terminate their longstanding program of molluscan research by allocating the Joshua L. Baily Fund revenue to support non-molluscan research in the Department of Marine Invertebrates.
>
> It is our sincere hope that in the coming weeks you will consider a malacologist for Collections Manager in the Marine Invertebrate Department.

(Reported by Kirstie Kaiser, Sec'y WSM)

Zoology of New York, Part V, Mollusca, James E. DeKay, 1843. (p.217):

VENUS MERCENARIA

This species is the common Round Clam, much prized as an article of food, and so savory in some localities as to be equally valued with the Oyster. Its aboriginal name of Quahog has now fallen into disuse. ... It abounds in all our bays, a few inches beneath the bottom, from low-water mark to two or six fathom water. ...

From the internal purple part of the shell, the colored beads of the aborigines were formerly manufactured, constituting the seawan or wampum, the specie currency of the natives. Long Island was formerly the great mint for the supply of this article, and hence its Mohegan appellation of Seawan hackee, or the Isle of Shells. The natives of this island were compelled to pay an annual tribute in wampum to those living on the mainland.

Unlocking the Mysteries of *Mercenaria*

Michael A. Arthur, associate professor of oceanography, and **David J. Allard,** M.S. candidate

Mercenaria mercenaria, known to Rhode Islanders as the quahog or hard shell clam ("chowder," "cherrystone," "little neck" in order of decreasing size), thrives in areas of Narragansett Bay where annual temperature and salinity are favorable for reproduction and growth. This bivalve mollusc, however, also lives in shallow marine bays and estuaries along the coast of the eastern United States from the Gulf of St. Lawrence to Florida and even in the northern Gulf of Mexico over a broad range of seasonal temperature and salinity changes. Although the body tissue (meat) of the clam is eaten and the crushed shell of the quahog is used on driveways, a little-appreciated fact is that the shell of the *Mercenaria* contains a record of the environmental changes that occurred during its growth. If correctly analyzed and interpreted, this record may provide an understanding of the bivalve population size and growth rate as a response to changes in the environment such as temperature, salinity, supply of organic material (a food source), and input of pollutants.

The prediction of variability of shellfish resources due to natural variations in the environment and to the activities of man is important to the shellfish industry, which in Rhode Island employed some 3,200 people and had revenues of as much as $120 million per year in 1984. Geologists may also be able to use shells from ancient marine deposits to infer prehistoric environmental conditions.

For the past several years we have, with Douglas S. Jones, a faculty member at the University of Florida and a curator at the Florida State Museum, been examining shells of *Mercenaria* and other bivalves collected from various locations in Narragansett Bay, as well as some grown in the experimental mesocosm on the University's Bay Campus where growth conditions are continually monitored. The research has been funded by Rhode Island Sea Grant. In our studies, we are attempting first to determine the main season(s) of growth and the history of growth of each bivalve, including the age and rate of addition of shell material, using a method called sclerochronology (see below). We then analyze the shell material for its chemical composition, including the relative abundance of the stable isotopes of oxygen ($^{18}O/^{16}O$) and carbon ($^{13}C/^{12}C$) in the calcium carbonate ($CaCO_3$) matrix of the shell in the hope that such data will yield information on the environmental changes that accompanied the growth of the bivalve.

The shells of *Mercenaria* are constructed of a mineral form of calcium carbonate called aragonite that is precipitated by the mollusc using chemical constituents ultimately drawn from ambient seawater. Such material must be continually added to the margin of the shell to accommodate the increasing size of the body tissue of the clam as it grows. This activity requires considerable energy, and therefore the growth record of the shell is in some way an indication of the availability of food and/or other environmental factors that either limit or encourage growth.

During formation of the shell material certain chemical ions are also incorporated as part of the mineral. To some extent these ions (strontium, magnesium, and other trace metals) are incorporated in proportion to the relative amounts dissolved in the water mass in which the organism lives. Therefore, we anticipated that the growth pattern and chemistry of the shells might record changes in the temperature and chemistry of the seawater in local parts of the Bay, including possible indications of trace metal (for example, copper, nickel, and zinc) pollution. It is too early to tell from our data whether we indeed will be able to use the trace element chemistry of the shells to trace environmental pollution, but we have learned some interesting things about the growth patterns of *Mercenaria* from a combination of the visible growth record in the shell and stable isotopic methods that have important implications for ecologists, archeologists, and geologists.

Each shell that we study is sliced longitudinally on a diamond saw so that we can examine and sample a cross-section of the shell along the direction of growth (Fig. 1). The section exposes features of the shell called growth lines, or increments, that provide clues to the time and rate of growth; it is the study of these growth bands that is called sclerochronology (analogous to dendrochronology, the study of growth patterns indicated by tree rings). This and other studies (see *Maritimes*, Aug. 1986) have shown that the rate of shell addition in most bivalves is not constant over a year and that, in general, the lighter-colored bands represent times of faster growth, whereas the darker-colored, denser bands represent times of slower growth. Sharp dark lines usually indicate complete cessation of growth for some period of time. In order to understand the timing of the inferred changes in growth rate we have used two approaches that have proven successful in previous work. The first approach involves sampling populations of *Mercenaria* at different times of the year to "catch them in the act" of laying down shell material of a certain type. In this we were aided by Dick Sisson, of the Rhode Island Division of Environmental Management, who allowed us to select specimens from each of several of DEM's monitoring localities in the Bay.

The second approach involves stable isotope studies of a number of shells across these growth intervals. The ratio of stable oxygen isotopes ($^{18}O/^{16}O$) in the carbonate of the shell material can be used to estimate the temperature at the time the material was deposited. Temperature changes influence the relative amounts of ^{18}O- versus ^{16}O-bearing carbonate molecules that are combined with calcium to form the aragonitic shell material, and we can calculate temperature if we know the ratio of the oxygen isotopes in the water from which the chemicals precipitated in the shell material were drawn. This we can measure and/or infer from salinity data and the oxygen isotope ratio in the shell carbonate. The measurements are made by converting solid carbonate to CO_2 gas and measuring the relative amounts of ^{18}O and ^{16}O in each sample. This can be done by comparing the gas to a gas of known isotope ratio, using a mass spectrometer to separate and measure relative isotope abundance on the basis of the slight differences in mass of CO_2 gas molecules containing either ^{18}O or ^{16}O atoms. The stable oxygen isotope composition is expressed as a part-per-thousand (per mil or o/oo) difference from the ratio of the reference standard used. When expressed this way, the numbers are called "delta ^{18}O" values ($\delta^{18}O$).

The results of a series of such analyses are shown in Figure 1c. The samples are taken approximately every 0.5 mm along the shell. The systematic cyclic changes in $\delta^{18}O$ represent annual cycles of growth, and help to refine the interpretations of the growth line record. The specimen of *Mercenaria* from which these samples were taken was a little over eight years old when it was collected from the Bay in the late summer of 1983 (count the number of more positive to more negative cycles in $\delta^{18}O$). Although these cycles are annual, we can tell by the range of the $\delta^{18}O$ values that the clam does not grow all through the year. Figure 2a illustrates the annual cycle of water temperature in Narragansett Bay for 1982. This is a typical annual cycle, with minimum temperatures of about 1° C (34° F) in the winter (February) and maximum temperatures of about 21° C (70° F) in the late summer (August). Figure 2b shows what we would expect the $\delta^{18}O$ record to look like over a year if the mollusc was precipitating aragonite year round. The values also are corrected for relatively small variations in salinity, a result of seasonal changes in freshwater runoff to the Bay, which influence the $\delta^{18}O$ of water in the Bay. If we compare the expected record to the actual data in Figure 1, we can see that this specimen of *Mercenaria* apparently added shell material only during the months of April through November. The textural features of the shell also correspond to a season of growth demonstrated by the oxygen isotope data. The lighter-colored intervals mainly correspond to spring-early summer growth, whereas darker, denser shell intervals apparently correspond to late summer to fall growth. The major sharp dark growth lines apparently represent complete cessation of growth during the coldest winter months.

The shape of the oxygen isotope curves also provides clues to growth rates. Spring-early summer growth is relatively rapid because the intervals are the thickest portion of the shell record; late summer-fall growth is much slower, and the closely spaced thin dark lines in the shell record indicate that there may be numerous brief cessations in growth during that time of the year. The fast spring growth phase is probably coupled to availability of food, perhaps from the winter-spring phytoplankton bloom that occurs in the Bay. Slower late summer to fall growth may be caused by a decrease in food availability or quality as well as the increased expenditure of energy in reproduction at this time of year. The winter cessation in growth may be temperature-triggered. On average, our data indicate that significant growth does not occur at temperatures below about 10° C in the Bay. This minimum differs from those for *Pitar*, another clam, and *Mytilus*, the mussel, by about 7° C and 4° C, respectively, as indicated by our isotope studies of those organisms. In the southern part of the range of *Mercenaria*, however, Doug Jones has shown that growth occurs through the winter, when minimum water temperatures remain above about 10° C, but that growth ceases entirely during the summer when water temperatures rise above 25° to 27° C. The data confirm that the optimum temperature range for *Mercenaria* is at surface water temperatures between 10° and 25° C.

Knowing the date of collection, we can count back to find that this specimen was spawned in the late summer or early fall of 1975. In that year, the shell grew only a few millimeters. We can also observe that the first four years of growth are the most rapid. Note, however, that the first year of growth (1976) seems to have been slower than the next three years. This is unusual for bivalves and may indicate that 1976 was, for some reason, not a good year, as can be demonstrated by examining the records from a number of bivalve shells. Using the sclerochronologic approach, validated by oxygen isotope data, we have begun to assess the times of growth in the population when there was a larger than normal survival of spat and good and bad years for growth in a population. Such information helps us understand the factors that affect the growth and population size of *Mercenaria* in the Bay and provides a minimum estimate of the time that it takes to replenish stocks of different-sized quahogs, thereby assisting in evaluating shellfish resources. In addition, archeological studies that make use of growth lines in molluscs from shell middens to indicate seasonal occupation by Indians of sites along the Bay will benefit from these studies.

Reproduced from
MARITIMES 31(2):14-17
Grad. Sch. of Oceanog.
Univ. of Rhode Island

Unlocking the Mysteries of Mercenaria (continued):

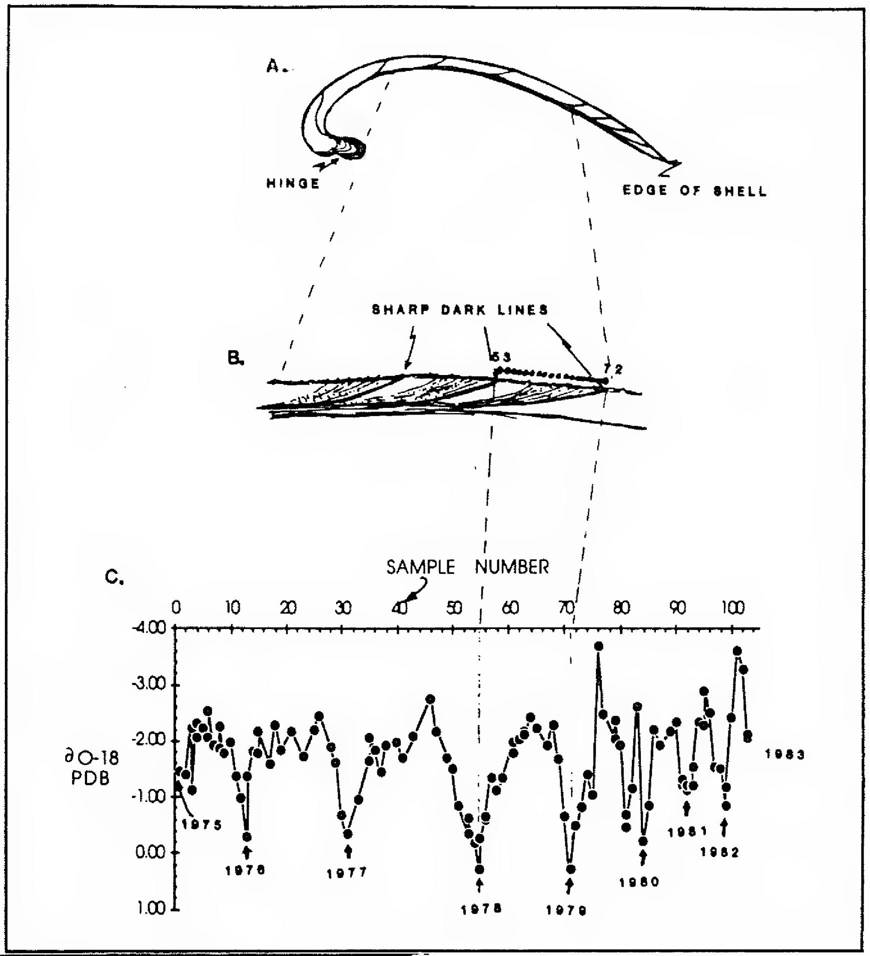


Fig. 1

a) Cross-section of M. mercenaria.

b) Close-up of shell showing alternating light and dark bands.

c) Oxygen isotope record from the same shell.

Arrows point to heavier δ^{18}O, corresponding to dark lines in the shell record representing cessation of growth in winter.

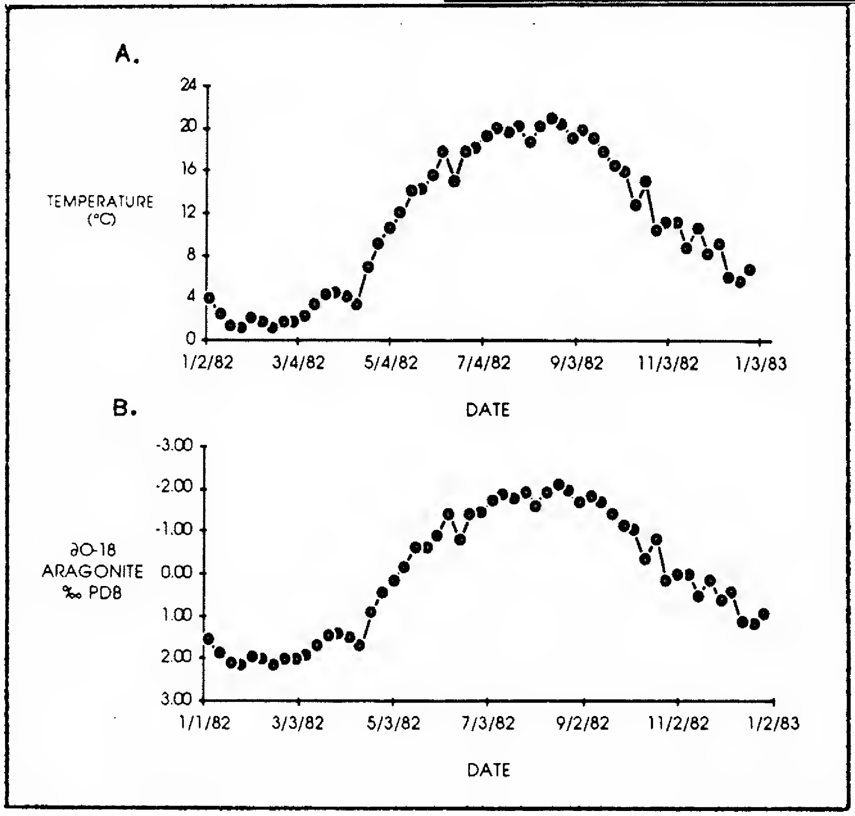


Fig. 2

a) Temperature of Narragansett Bay in 1982.

b) Expected δ^{18}O of shell aragonite precipitated in Bay water during the same year.

SOME OBSERVATIONS ON THE LONGEVITY OF THE HARD CLAM MERCENARIA MERCENARIA (Linné)

Richard A. Lutz and Harold H. Haskin
Dept. of Oyster Culture, N.J. Agricultural Experiment Station,
Cook College, Rutgers University, New Brunswick, N.J. 08903.

In the late 1940's and early 1950's a series of mark-recapture experiments was conducted by Thurlow C. Nelson and Harold H. Haskin to assess the growth of northern hard clams on Delaware Bay mud flats adjacent to Rutgers' Oyster Research Laboratory (Cape May County, New Jersey). Two specimens from these experiments were recovered alive on 7 September 1980. The growing shell margin of one of these specimens (#1; shell length at sampling = 87 mm) had been notched with a hack saw between March and December 1947 (shell length at notching = 49 mm). The growing shell margin of the second specimen (#2; shell length at sampling = 99 mm) had been notched with a small triangular file between March 1948 and December 1951 (shell length at notching = 58 mm). Examination of polished shell sections (cut along the axis of maximum growth) of specimens #1 and #2 revealed, respectively, 33 and 30 dark (translucent) bands within the postnotch regions of the outer and middle shell layer of each specimen The presence of light (opaque) shell material at the growing margin of each of these specimens is consistent with the observations of other workers that indicate formation of dark (translucent) bands in this species during the winter months in New Jersey waters. Interpretation of surface and internal growth patterns of the prenotch shell regions of the two specimens suggests that each was approximately 3 yr. old at the time of notching. The resulting age estimates of 36 and 33 years for these specimens are, to the best of our knowledge, the oldest reported to date for this species from long-term monitoring studies.

Journal of Shellfish Research 5(1):39,
Abstracts, 1984 Annual Meeting.

CONCHOLOGISTS OF AMERICA — 15th ANNUAL CONVENTION

Walter E. Sage

I arrived in St. Louis on June 22 for an advance meeting with other officers of the COA. We took care of our business in record time, and began to enjoy the attractions of this hub of the Midwest. Our hosts, the members of the Greater St. Louis Shell Club, outdid themselves in providing for our every need and want. The Days Inn Hotel, nestled under the Gateway Arch, proved to be an excellent site for our meetings — preparations were executed well in advance of our schedules, and all was in readiness for our programs and meetings.

A blast from a Triton's Trumpet opened the meeting on Tuesday afternoon, with 165 registrants. Welcoming ceremonies were followed by three slide talks: "Color and Shapes of Shells," George Karleskint, Jr.; "Shelling in Indonesia and Malaysia," Richard Forbush, and "Tumult in the Rivers — The Story of the Freshwater Pearl Button Industry," Dr. Gregory Bogosian. COA President Richard Goldberg gave a short presentation on "COA Sartorial Splendor," — slides of former COA convention attendees sporting varied shell fashions. The opening day was topped off by a sumptuous evening wine and cheese party sponsored by the host club.

Wednesday, June 24 saw the continuation of the slide talks: "Shelling in Palau, Micronesia," Alta Van Landingham; "Operculums and Apertures," Stan Phillips; "COA 1986 - Ft. Lauderdale, Florida" and "Hosting a COA," Donald J. Young; "Landshelling in Jamaica," Richard Goldberg; "Shelling in New Zealand," Al Chadwick; "Around the World in 80 Dives," Twila Bratcher; "My, What big teeth you have" or "Radula Rhapsody," Bob Lipe. That evening was scheduled the annual auction of whells and related items. All those in attendance agreed that this was an especially interesting auction under the gavel of Marty Gill, auctioneer extraordinaire.

Thursday morning slide talks were: "Australia and South Pacific Shelling," Don Pisor; "Oceanography," Hank Foglino; "Shelling and Dredging, Montijo, Panama," Homer Rhode. That afternoon was devoted to scenic tours of the St. Louis riverfront, and the evening was reserved for a dinner cruise up the Mississippi River on the paddlewheeler Huck Finn — truly an exceptional evening.

The last of the slide talks were given on Friday, June 26: "Ozark Basin Mollusca," Alan Buchanan; "American Naiad Mollusca," Dr. David H. Stansbery, and "Those Variable Terebras," Twila Bratcher. There followed a brief history of the COA and a tribute to all its presidents, six of whom were present. After the annual business meeting the rest of the afternoon and evening was given over to the Dealers' Bourse, with twenty-three dealers represented.

The Dealers' Bourse continued on Saturday, June 27. Another treat was a bus tour to Union Station and the Missouri Botanical Gardens. That evening the traditional banquet was held, with Dr. Alan Solem of the Field Museum, Chicago, as guest speaker. The topic of his slide-illustrated talk, "The Challenge of the Land," discussed problems of collecting land mollusks, focusing on the arid outback of Western Australia.

There were many highlights of this convention: the slide talks, the many door prizes of books and other desirables, the sightseeing, the riverboat, the dealers' bourse — you name it, this convention had it. And we all experienced it. We encourage you all to come to Fort Myers, Florida next July 11-15 and see for yourselves. The 1988 meeting, President Don Young presiding, will be hosted by the Southwest Florida Conchological Society with headquarters at the Sheraton Harbor Place in Fort Myers.

COMPENDIUM OF SEASHELLS (third printing, revised),

by R. Tucker Abbott and S. Peter Dance, 1986. 411 pp., color photographs. $48.50 from American Malacologists, Inc., P.O. Box 1192, Burlington, Massachusetts 01803.

This compendium, with its color plates of 4,210 species, has proven to be a most popular and very useful book in the few years since the first printing in 1983. The third printing (which sports a green binding and dust jacket) has afforded the authors the opportunity to make some forty changes in nomenclature indicated by recent research studies and sharp-eyed conchologists. These current changes have been added at the end of the book and need to be noted by the reader at their proper places in the text.

With this updating, Compendium of Seashells becomes an even more valuable reference for anyone interested in worldwide marine shells.

Walter E. Sage

Oman: sea shells

from "Aramco World", 1984

WRITTEN BY JOHN LAWTON

In the 1950s, Dr. Donald Bosch, one of the very few surgeons in Oman, had people lining up outside his tiny operating theater at the American hospital in Matrah. On some occasions he would treat more than 200 patients and perform up to 10 operations in a single day – in difficult conditions and with little trained help.

The pressure, obviously, was intense. So Dr. Bosch forced himself to relax by walking regularly along nearby beaches with his wife and, as a result, took up a hobby that has since made him an international authority on the seashells of Oman.

"It all started because of those walks along the beach," says Dr. Bosch, now chief medical officer at the modern Khoula Hospital with more than 60 doctors working under him. "We just couldn't help noticing the staggeringly beautiful shells all around us."

Thinking these shells might be of interest to experts – since Oman was then largely unknown to the West – Dr. Bosch wrote to the American Museum of Natural History asking if they might be interested in seeing some specimens. The answer, to his surprise, was a cable: yes, the museum was *very* interested. A letter quickly followed with instructions on how to collect and ship the shells to New York, and shortly after letters began to arrive from museums and universities as far away as New Zealand, South Africa and Japan, also asking for shells.

So began a quarter of a century of beachcombing for Dr. Bosch, during which the American physician and his family collected, classified and sent off, wrapped in newspapers, thousands of shells to scientists all over the world. In the process, he himself became a conchologist of world repute.

Acteon eloiseae, a new shell named after Eloise Bosch.

In recognition of what one expert describes as "valuable new information in the field of conchology," no fewer than four new species of shellfish discovered in Oman have been named after the Bosch family *Conus boschi*, *Ancilla boschi*, *Cymatium boschi* and, in honor of Dr. Bosch's wife, Eloise, *Acteon eloiseae*, a very colorful and attractive species characterized by three spiral rows of large rose-colored, crescent-shaped blotches, each bordered by a strong black line. A fifth, newly-discovered shell is to be named *Bursa boschdavidi* after one of Dr. Bosch's sons, David, who works for Aramco in Dhahran, Saudi Arabia.

Cymatium boschi, a new shell discovered by Dr. Bosch.

Altogether, Dr. and Mrs. Bosch have identified over 500 different types of shell in Oman – a country particularly rich in shellfish because of the varied habitat around its coasts; in places, mountains plunge steeply into a deep nutritious sea, and in others, white sandy beaches slope gently into warm shallow waters.

These beaches are also a haven for sea turtles. Five species – the loggerhead, green turtle, hawksbill, Olive Ridley turtle and leatherback – are found in Oman, and two of these species commonly breed there.

* * * * * * *

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #20C
New York, N.Y. 10025
212-866-1298

Directors: **FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, AL SCARPETTI**

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1987-8

The second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April meeting which is a combined auction and social meeting. The Museum is at Central Park West and 79th Street, New York City.

Sept. 13, 1987
Oct. 11, 1987
Nov. 8, 1987
Dec. 13, 1987
Jan. 10, 1988
Feb. 14, 1988
March 13, 1988
April 10, 1988
May 8, 1988
June 12, 1988

On meeting days Room 419 will be open at 1:30 P.M. This will provide time before the formal meeting to consult with others on one of your 'problem shells', to suggest programs or activities for N.Y. Shell Club, glance at recent publications, or just visit with new and old friends.

1987/1988

WE WISH YOU HAPPY HOLIDAYS AND A SUCCESSFUL NEW YEAR!

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. We are pleased to announce the following programs:

December 13, 1987:	NAOMI STERN discusses her scuba and shelling experiences in the Red Sea.
January 10, 1988:	JOHN BOCKELMAN shares his trip to the Cayman Islands.
February 14, 1988:	MEMBERS share their shelling experiences in a group of mini-lectures.

CONTENTS

		Page
Obituary: Tokubei Kuroda	M. Tabakotani	2
MKJ Scholarship Award	Astronaut Trail SC	2
1988 Winter & Spring Shows & Meetings	Donald Dan	3
Texas Names a State Shell	Texas Highways Mag.	5
The State Shells	Editor	5
REVIEW: New Caribbean Molluscan Faunas, by Edward J. Petuch	R. Tucker Abbott	6
Carbon-14 Clue to Age & Growth Rate of the Chambered Nautilus	AMNH Release	7
Significant Others (Aplysia)	Pam Scott	9
What's in a Name? (Aplysia, Bursatella)	Dorothy Raeihle	10
Aplysia californica, Mass Culture	Capo, Perritt, & Page	10
Field Note from Australia (Mariculture of Tridacna gigas)	James Duggan	11
Clam Mariculture in Chicago (Tridacna gigas)	Oceans Magazine	11
Crab Shells into Suture Thread	Report on Seat Grant by Shell-O-Gram	11
A Moratorium on the Collecting of Liguus	U.S. Dept. Interior	12
A Slug Repellent for your Garden?	AT&T Bell Labs. Adv.	12
Is Winning Everything?	Dave Green	13
The Essence of Pearl	David K. Bulloch	14
Highlights of the September Meeting	Milton Werner	15
Highlights of the October Meeting	Milton Werner	15
Highlights of the November Meeting	Milton Werner	16
Do Sea Slugs Pack a Wallop Against Cancer?	Business Week	17
Obituary: George Raeihle		18

TOKUBEI KURODA

A sad news for us is that Dr. Tokubei Kuroda, Honorary Chairman of the Malacological Society of Japan, passed away on May 15, 1987 in Japan, at the age of 100. Maybe Dr. Emerson or Mr. Sage will tell the members of NYSC about Dr. Kuroda's contribution to the malacology, but I would like to describe briefly how important his roles were.

He was born in the Island of Awaji, western Japan, where Mr. Yoichiro Hirase was also born. After completing just an elementary school education Dr. Kuroda went up to Kyoto and joined Mr. Hirase's private shell museum. He studied English and Latin languages by himself while he assisted the collection of Mr. Hirase. He met with the Emperor Hirohito in 1927 for the first time. Then he helped his friend collectors and scientists establish the Malacological Society of Japan the next year. He received his doctorate in 1947. His efforts to catch up with the advanced malacological studies in Europe and the U.S. were rewarded by so many younger malacologists including Dr. Tadashige Habe.

In his late years Dr. Kuroda had been hospitalized at Nishinomiya Hospital near Kobe City whose owner, Dr. Kikuchi, is one of the leading shell collectors in Japan. Mrs. Kuroda had passed away in the same hospital a few years before. Dr. and Mrs. Kuroda had no child, but they are survived by a niece. The next issue of "Venus" will honor the contributions of Dr. Kuroda to the Japan's (and also to the world's) malacological circles.

M. Tabakotani
September 4, 1987

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club of Brevard County, Florida this year will offer one or more scholarship awards of up to $1500.00 for support of graduate research in molluscan biology. Research should deal primarily with natural history, ecology, or systematics of mollusks. Applicants must be registered in an M.S. or Ph.D. degree program at an accredited Florida college or university.

Applicants should submit (1) a brief educational resume; (2) an outline of the research project (including objectives, methodology, significance, and relevant literature); (3) budget, with explanation of how funds will be expended; and (4) a letter of recommendation from the student's research advisor (e.g. thesis committee chairperson) to be mailed separately. Applications should be mailed to:

Attn: Dr. K. B. Clark, Chairman of Scholarship Awards
Astronaut Trail Shell Club of Brevard, Inc.
P.O. Box 360515, Melbourne, Florida 32936-0515

All materials must be received by 15 December, 1987. Awards will be announced on 24 January 1988.

This scholarship is awarded in memory of Morris Karl Jacobson, an Honorary Life Member of the Astronaut Trail Shell Club who made many scientific contributions to malacology, and who was author of several popular books on shells and sealife.

1988 WINTER & SPRING SHELL SHOWS & MEETINGS

Donald Dan, October 31, 1987

With a full complement of shows in Florida and elsewhere, the 1988 winter and spring events appear to be making up for another banner season.

Naples Shell Show leads off the season with a move from the Coastal Mall to the Naples Depot, a local historical building which the city has renovated for holding exhibitions. Also, for the first time, there will be dealers at this show to be held January 15-17.

I have been informed that due to problems in finding a suitable place for a shell show, the February 26-28 Palm Beach Shell Show will be a non-competing exhibit. It is hoped that this show can return to the Palm Beach Mall in 1989 when its renovation will be completed. Then it will resume the competitive format.

At the venerable Sanibel Shell Fair, March 3-6, the show sponsor plans to set up tents to make space available to dealers for the first time.

New to the scene is the Treasure Coast Shell Show in Stuart, Florida. Although the local club has hosted membership-only club shows before, this will be the first time that its show (March 19-20) will be an openly competitive event.

After a long association with the local Jewish Community Center, the biannual St. Louis Shell Show (April 22-24) will be moved to the Westport Plaza Mall. A limited number of dealers will be invited to this show for the first time. With this, the transition of all major shows to include dealers is now complete.

We welcome back the Long Island Shell Show. Extensive preparations are being made to publicize this rare Northeastern United States show, to be held April 29 - May 1st at the Freeport (New York) Recreation Center.

With each listing is the contact address and telephone number through which you can get more information:

Jan. 15-17 Naples Shell Show, at the Naples Depot, Naples, Florida
Jim Erler, Naples Shell Club
P.O. Box 1991
Naples, FL 33939 (813) 775-0064

Jan. 22-23 Astronaut Trail Shell Show, Melbourne, Florida
Jim & Bobbi Cordy
385 Needle Boulevard
Merritt Island, FL 32953 (305) 452-573

Jan. 29-30 Greater Miami Shell Show, North Miami, Florida
BJ Larson
8850 Byron Avenue
Surfside, FL 33154 (305) 554-1981

Feb. 5 - 7 Broward Shell Show, Pompano Beach, Florida
Jean Andrews
451 S.E. 15th Avenue
Pompano Beach, FL 33060 (305) 782-2837

Feb. 12-14 S.W. Florida Shell Show, Sheraton Hotel, Ft. Myers, Florida. (See next page: Eugene P. Herbert ——)

Eugene P. Herbert
19168 Meadow Brook Court N.W.
North Fort Myers, FL 33903 (813) 731-2405

Feb. 19-21 Sarasota Shell Show, Sarasota, Florida
June Bailey
813 Bayport Way
Long Boat Key, FL 33548 (813) 383-6657

Feb. 26-28 Palm Beach County Shell Show, West Palm Beach, Florida
Phyllis Diegel
143 Alcazar Street
Royal Palm Beach, FL 33411 (305) 798-5351

Feb. 26-28 St. Petersburg Shell Show, Treasure Island, Florida
Bob & Betty Lipe
440 75th Avenue
St. Petersburg Beach, FL 33706 (813) 360-0586

Mar. 3 - 6 Sanibel Shell Fair, Sanibel Island, Florida
Doris H. Platt
Sanibel Community Association
P.O. Box 76
Sanibel, FL 33957 (813) 472-2511

Mar. 9-10 Marco Island Shell Club Show VIII, Marco Island, Florida
Dolly Bergman
58 North Collier Boulevard, Gulfview #1503
Marco Island, FL 33937 (813) 642-6595

Mar. 19-20 Treasure Coast Shell Show, Stuart, Florida
Anita Blondin
1808 Circle Drive
Juno, FL 33408 (305) 626-7484

Mar. 25-27 Central Florida Shell Show, Orlando, Florida
Dave Green
5883 Pitch Pine Drive
Orlando, FL 32819 (305) 345-0286

Apr. ? Greater Georgia Shell Show, Atlanta, Georgia
Henry Close
403 Ansley Villa Drive
Atlanta, GA 30324 (404) 892-6744

Apr. 22-24 St. Louis Shell Show, Westport Plaza Mall, St. Louis, Missouri
George Karleskint
2007 South Compton Avenue
St. Louis, MO 63104 (314) 865-0656

Apr. 29 - May 1 Long Island Shell Show, Freeport (NY) Recreation Center
Vi and John Greenlaw
5 Etna Lane
Dix Hills, NY 11746 (516) 421-5235

June 19-24 American Malacological Union Annual Meeting at Charleston, South Carolina.
Richard E. Petit
P.O. Box 30
North Myrtle Beach, SC 29582 (803) 249-1651

Details will be given as we receive them for the following summer events. The AMU Meeting having bridged the gap between spring and summer, next on the calendar is the 16th Annual Convention of the Conchologists of America, to be held at the Sheraton Harbor Place in Fort Myers, Florida. The convention will be hosted by the Southwest Florida Conchologist Society, co-chairmen Gene Herbert and Al Bridell. Make a note of the dates: July 11-15.

The Jacksonville, Florida, Shell Show has for the past several years been held at the end of July at the Flag Pavilion at Jacksonville Beach. At present we have no affirmation of either the place or the date, so watch for further news. (—Ed.)

TEXAS NAMES STATE SHELL

[The following item was submitted by Betty Collins to The Mollusk *25*(8):5, August 1987, Greater Miami Shell Club.]

The June, 1987 issue of Texas Highways magazine reports that on April 2 of this year, the Texas legislature named *Busycon perversum pulleyi* as the state shell of Texas.

Interestingly, the article gives the common name of the shell as the Lightning Whelk, the name most Floridians give to *Busycon contrarium*, which does not occur in Texas. *B. perversum pulleyi*, known as Pulley's Perverse Whelk, is a variety of the Perverse Whelk which occurs on the Louisiana and Texas coasts.

THE STATE SHELLS

To date we know of seven states that have adopted an "official state shell." Six of these are Recent marine gastropods, one is a beautiful fossil species. Please let us know if additional states have acknowledged the presence and interest of their own most typical mollusk. The seven states and their official shells are:

FLORIDA:	*Pleuroploca gigantea* (Kiener, 1840), commonly called the Florida Horse Conch, or simply Horse Conch.
GEORGIA:	*Busycon carica* (Gmelin, 1791), subspecies *eliceans* (Montfort, 1810). While *B. carica* is the Knobbed Whelk, its well-knobbed subspecies, *eliceans*, is Kiener's Whelk.
MARYLAND:	*Ecphora quadricostata* Say — a Pliocene fossil? Or an index fossil of the Miocene? Very beautiful.
MASSACHUSETTS:	*Neptunea lyrata decemcostata* (Say, 1826), the New England Neptune or the Ten-ribbed Whelk.
NORTH CAROLINA:	*Phalium granulatum* (Born, 1778), the Scotch Bonnet.
SOUTH CAROLINA:	*Oliva sayana* Ravenel, 1834, the Lettered Olive.
TEXAS:	*Busycon perversum* (Linné, 1758) subspecies *pulleyi* (Hollister, 1958). This subspecies is more slender with a turreted spire and more and smaller spines on the shoulders; lacks the swelling around the girth of the body whorl (see: American Seashells, Abbott, 1974, p. 223, No. 2448).

REVIEW:

NEW CARIBBEAN MOLLUSCAN FAUNAS

by Edward J. Petuch. 1987. Published by Coastal Education and Research Foundation (CERF), Charlottesville, Virginia. 154 + 4 pages, 28 + 1 plates, softcovered. Price: $32.50.

Despite vitriolic international reviews of previous molluscan works being produced by this private "foundation," this latest publication shows great improvement in the quality of format, editing and illustrations (see Philippe Boucher, 1987, in Xenophora no. 38; Henry W. Chaney, 1987, in The Festivus, vol. 19, no. 6). The Olive book published last year by CERF had the unique record of 342 spelling mistakes, wrong dates, incorrect authors, upside-down illustrations and switched catalog numbers and figure references. This new paper has a minimum of such careless editorial control, a fact often beyond the correction by authors.

The present work is a symptom of a curious present-day situation in malacology, reminiscent of the 19th century era of Hugh Cuming, the Sowerbys, Reeve and Marrat. Improved methods and an increase in shell collecting, a scarcity of well-trained mollusk taxonomists, and the pressure of commercial seashell interests have brought on the unbridled description of new species. Some, of course, are obviously new good species; but many others are probably ecologic forms, expressions of geographical clines or limited populations in transient isolation.

CERF's new paper is well illustrated by the excellent black-and-white photographs made by Kevan Sunderland, a top Floridian shell collector. This work will be useful to amateurs, and those who must keep up with the literature, because it illustrates many uncommon, previously described Caribbean species, as well as the 109 species and 5 genera newly described. In due course, the latter novelties will be analyzed by others engaged in monographic studies and the valid ones accepted into the scientific literature and new editions of popular guides.

It is not possible in a short review to discuss the status of these new species spanning thirty major families, other than to say that in all likelihood at least ten to twenty of them will prove to be valid when careful study is undertaken. Surely the scientific experts on the Cerithiidae, Muricidae, Trochidae and Pectinidae could have staved off synonyms and other placement errors had this work been reviewed by competent peers prior to publication. One need only compare the recent careful treatment of the genus Cataegis, with its anatomical, radular and shell observations (McLean and Quinn, 1987, in The Nautilus, vol. 101, no. 3) to realize the ludicrous nature of the treatment of "Homalopoma finkli n. sp." Actually it is in the Trochidae, not the Turbinidae, and unfortunately is a senior synonym of Cataegis toreuta McLean and Quinn, 1987.

One clear case of a remarkable discovery is the appearance in the Miami area of a small parasitic gastropod, Cyclotheca (sic) pacei now being found by scuba divers on Spondylus, as well as on Chlamys. However, Cyclothyca pacei (Petuch) is not in the family Capulidae, but rather a new family near the Pyramidelloidea heterogastropods, a fact long known to our colleagues in California and Australia.

I agree with the author, although perhaps not his possible motives, in naming new species after those we wish to honor for their activities in malacology. This adds a bit of history to our nomenclature. The American Malacological Union's committee on vernacular names frowns on this custom and, indeed, usually refuses to translate these easily-remembered names into common English names, e.g., Linda's Volute, Harland's Cone, etc. Their objections and fears, however, have some foundation when we see that this author has named 21 new species after Linda Petuch, 11 after Kevan Sunderland and 8 after Robert Pace in the same publication.

The so-called "Caribbean Molluscan Faunas" are really not well-defined faunas, nor faunules as Bartsch would call them, nor newly-discovered, nor always newly-named. The paper is artificially divided into small areas which are best defined as localized collecting grounds from which the author has been given "strange and new species" by enthusiastic shell collectors and shell dealers. If the reader wishes to track down a new species in his favorite genus, he will have to search throughout six different "faunas" or parts of this geographical maze.

Only time and thorough scientific work will sort out the taxonomic excesses of workers like Maxwell Smith, Paul Bartsch, Edward Petuch and others. This "arrogant" reviewer would like to make the "pronouncement" that almost every shallow-water marine mollusk in the Caribbean has probably been named three or four times, and that even some of Petuch's valid species will themselves receive additional synonyms as amateur taxonomists continue to describe new species. Let us hope that CERF does not continue its practice of encouraging the old disease known as the "mihi itch." Mihi was the Latin term used to indicate that these are "my species."

R. Tucker Abbott [Reprinted from
The Festivus XIX(10):98, Oct.1987]

BOMB-GENERATED CARBON-14 PROVIDES CLUE TO SCIENTIFIC PUZZLE:
THE AGE AND GROWTH RATE OF THE CHAMBERED NAUTILUS

The atmospheric testing of atomic weapons in the 1950s has unexpectedly provided scientists with a means for estimating the growth rate and age at maturity of the Chambered Nautilus, an animal related to squids, octupuses and extinct ammonites. Carbon-14 created during bomb tests in the Pacific settled into seawater where some of it was ultimately incorporated into the hard parts of the Nautilus.

Because the C-14 concentration in seawater increased steadily between 1958 and 1970, the hard parts of marine animals formed during that time bear distinctive C-14 signatures.

The technique used by a scientist at the American Museum and his colleagues could be employed to establish age and developmental timing in any marine organisms that incorporate carbon into their shell or skeleton.

Neil H. Landman, associate curator in the Museum's Department of Invertebrates, and his colleagues measured the C-14 in a Nautilus (which had been captured in 1969 in 50 to 80 meters of water off New Caledonia) using a technique called accelerator mass spectroscopy. They took six samples from the animal, five from the septa — partitions that divide the interior of the Nautilus into chambers — and one from the edge of the shell opening.

They compared the observed values of C-14 in the Nautilus with an independent set of C-14 data for banded corals from Australia's Great Barrier Reef. The coral data, documenting the steady rise in C-14 from 1958 to 1970, permitted the researchers to estimate the date of formation for each of the samples from the Nautilus.

As a Nautilus grows, it adds new shell at the outer edge of the spiral and periodically produces a new septum. The animal lives in the outermost chamber and pumps water out of the remaining chambers to provide buoyancy.

The captured Nautilus had 31 septa and was mature, based on various shell characteristics. (The best way to gauge maturity is to look at the sex organs of a live animal, but by the time this specimen was studied, only its shell and septa remained.)

The Chambered Nautilus (Nautilus pompilius Linné), the only living shelled cephalopod, lives up to 500 meters deep in the ocean and has proved difficult to keep healthy for more than a few months in the laboratory. Scientists have thus had a poor understanding of its natural history, including such facts as its life span and growth rate.

Nevertheless, earlier studies led to estimates of the animal's life history characteristics. Mark-recapture studies (in which the animals are marked, released and recaptured as much as a year later) suggested that the Chambered Nautilus may reach maturity at 15-17 years and live for more than 20. Studies with naturally occurring radioactive isotopes have put the time between formation of adjacent septa at one to three months and the age to maturity at about 10 years. Both of these kinds of studies estimate age to maturity by extrapolating growth rates measured over a year or two.

Even poet Oliver Wendell Holmes made a guess at the period between septa in his poem "The Chambered Nautilus":

Year after year beheld the silent toil
    That spread his lustrous coil;
    Still, as the spiral grew
He left the past year's dwelling for the new.

The present study using bomb-generated radiocarbon shows that Holmes' estimate of one year between septa was too long and too regular. New septa are formed at intervals of three to seven months.

The study also concludes that the first septa to form after the captured specimen hatched probably did so in 1957, making that year the best estimate for the animal's birth. The Nautilus was mature when captured 12 years later, so the age to maturity — for this specimen at least — is no more than 12 years. Judging from shell characters, the specimen could have been mature for more than a year when captured. Therefore, its age to maturity is best estimated at between 10.5 and 12 years.

These results are similar to the earlier ones obtained with naturally occurring radionuclides, but have the advantage of being the first to estimate independently the age to maturity of any Nautilus.

Reprint of a Release dated 8/10/87
from the Office of Public Affairs,
American Museum of Natural History

SIGNIFICANT OTHERS

An Introduction to the Sea Hares

by Pam Scott
Fort Myers, Florida

One of the most overlooked and underappreciated of all mollusks is the sea hare. We collect and study the shells and animals of land, freshwater and marine mollusks, and read with rapt interest and sometimes awe, stories involving intelligent octopi and super-enormous squid. Yet the gentle, graceful sea hare is still a creature we skirt around when we encounter him in the water and gingerly prod with a stick when he is found stranded on the beach.

Generally found in Bermuda, Florida, California and Japan, the sea hare somewhat resembles his distant cousin, the nudibranch. His pronounced oral tentacles earn him the popular name of sea hare. The oral tentacles, and the rhinophores located just behind them are antennae-like sensory structures enabling him to sense food, enemies and obstacles.

The sea hare undulates silently through the water, propelling himself by slowly flapping his parapodia - the broad, wing-like extensions of his foot. The parapodia can be folded protectively over the hump of organs on the animal's back while he is at rest or while grazing on the algae which is his diet. A vestigial shell is also found in most sea hares, under the smooth skin of the creature's back. I have found a number of the thin, translucent, pliable shells left by south Florida's Spotted Sea Hare (Aplysia dactylomela) washed up on local beaches in the spring, looking for all the world like flat-bottomed soap bubbles. Another of our local species, the Ragged Sea Hare (Bursatella leachi plei) has no internal shell, while that of the Green Sea Hare (Dolabrifera dolabrifera) is heavier and covered with a brown periostracum. Sea hare shells are unfortunately unattractive and become cracked and brittle once they have dried. The beauty of the creature lies in its grace and gentleness.

Sea hares are hermaphroditic and lay enormous amounts of eggs among the sea grasses, rocks and shell bottoms. Eggs are contained in long gelatinous strings – up to 86 million eggs a season by just one of these invertebrates. Shortly after extruding its egg strings the animal dies, having presumably fulfilled its life's purpose. The life span of a sea hare is generally just one year.

Adult sea hares range in size from the tiny 30mm Petalifera ramosa to California's giant thirty-by-fifteen inch, thirty-five pound Aplysia vaccaria, reported by at least one source to be the largest known living gastropod.

Several defense mechanisms have been adapted by sea hares. A distasteful organic compound produced by the algae they eat is stored in the mantle. A further deterrence to predators is the secretion of a milky substance and, of course, anyone who has ever handled a sea hare is familiar with their startling habit of emitting good amounts of purple or dark red "ink", which is discharged from specialized glands.

Watch for these harmless swimmers in shallow bay waters during their breeding season. It is a calming sight to watch them glide gracefully through the water, seemingly without a care in the world.

References: Abbott, R. Tucker 1974. American Seashells, 3rd Edi-

tion, Van Nostrand Reinhold.
Niesen, Thoimas M. 1982. The Marine Biology Coloring Book, Harper and Row.
Rudloe, Jack 1984. The Erotic Ocean, E. P. Dutton.
Fotheringham, Nick. Beachcomber's Guide to Gulf Coast Marine Life.
Voss, Gilbert L. 1980. Seashore Life of Florida and the Caribbean, Banyan Books.

Reprinted from TIDE-INGS 27(10):4 of the Crown Point Shell Collectors Study Group

WHAT'S IN A NAME?

We quote from Henry Poirier's 1954 work, An Up-To-Date Systematic List of 3200 Seashells from Greenland to Texas: Translation, Explaation and Gender, pages 106-107:

> Aplysia in Greek means filthiness. Latin aplysiae refers to a sponge, so named on account of its dirty gray color. Formerly these mollusks were considered poisonous. They live among seaweeds. Common name: Sea Pigeons or Sea Hares.
>
> Aplysia dactylomela (Greek dactylos, finger + melos, limb. Tentacles are cylindrical, slit at the extremity.)
>
> Bursatella (A little purse.)
> Bursatella leachi plei Rang [named for the well known English malcologist W. E. Leach (1790-1836) and for a Mr. Plée, collector in the West Indies. Should have been written plëei. Formerly known as Notarchus pleii. (Notarchus = swollen in the middle.)]

P. K. S. L. Rang (1784-1859) described these two species in his work Histoire Naturelle des Aplysiens, Paris, 1828. (Source of this information: Shell Collecting, An Illustrated History, by S. Peter Dance, 1966.)

D. Raeihle

THE MASS CULTURE OF APLYSIA CALIFORNICA

Capo, Thomas R., Perritt, Susan E., and Page, John, Howard Hughes Medical Institute, Aplysia Resource Facility, Woods Hole, MA 02543.

We have developed laboratory techniques for the reliable mass culture of Aplysia californica in natural seawater. Specific focus has been given to solving previously encountered culture problems. These include larval entrapment at the air-water interface, disease, the difficulty of obtaining a reliable source of metamorphic substrate and the production of large numbers of larval and juvenile sea hares.

By applying patiently learned techniques, over 45,000 larvae are mass cultured through the obligatory planktotropic phase to metamorphic competency in one year. Mass settlement and metamorphosis are induced by the use of a laboratory culture of the alga, Agardhiella subulata (Strain A1). As the sole postmetamorphic food, this microalga provides the nutrition necessary for subsequent growth through the early juvenile stages. Four opisthobranch species - Aplysia californica, Aplysia brasiliana, Bulla gouldiana and Hermissenda crassicornis - have been cultured using the techniques, with only slight modifications.

From the Abstract published in the
program of the 1987 meeting of the
American Malacological Union, p.18

FIELD NOTE FROM AUSTRALIA

by James Duggan

Two thousand baby giant clams (Tridacna gigas) have been flown from Townsville, Queensland, to Fiji in an attempt to prevent their extinction. They remained in specifically prepared quarantine stations before they were released into the Pacific waters around Fiji and the Philippines. These clams are practically extinct in Fijiian waters and more so in the Phillipines due to over-fishing. These baby clams were raised at the James Cook University Research Station on Orpheus Island, Australia. Adult clams can grow to three feet in diameter and weigh several hundred pounds. This project is being funded by the Australian Centre for International Research, aiming to develop methods for commercially farming giant clams and restocking coral reefs where the clams have been fished out.

Underwater Naturalist 16(3):22 July 1987

CLAM MARICULTURE IN CHICAGO

The June 1987 issue of Oceans reports that the Chicago John Shedd Aquarium is raising juvenile giant clams as part of an experimental clam mariculture program sponsored by the Waikiki Aquarium in Honolulu. Waikiki distributes young clams to Shedd and other aquariums across the country in an attempt to gather data from a variety of different but controlled environments in which the bivalves are being cultured.

CRAB SHELLS INTO SUTURE THREAD

University of Delaware Sea Grant researchers have found a use for the mounds of crab shells that are discarded each year by the crab industry. They're turning the shells into surgical suture thread that slowly dissolves in the body and is nonallergenic. What's more, the thread has a positive side effect — it promotes wound healing.

The shells of crabs are made of a tough material called chitin — a colorless, hard amorphous compound that forms the principal constituent of the hard covering of insects and crustaceans, the same horny material as in the ligament of bivalves, the internal shell remnant of the squid, and the horny operculum of many gastropods, as Littorina, Architectonica etc.

For fifty years, chemists have known that chitin has many useful properties. But before they could find a way to dissolve the shells and turn chitin into a usable form, nylon was invented and claimed most of the glory. Then, ten years ago, a Delaware Sea Grant researcher found a way to turn the crab shells into a gooey liquid that could be formed into tough fibers. Now a Japanese firm is using that information to make sutures from chitin.

This isn't the first dissolvable suture invented. But the others often cause allergic reactions and aren't suitable for some areas of the body. Chitin sutures overcome those problems.

Now Delaware Sea Grant researchers are studying powdered chitin's wound-healing properties with an eye to developing an ointment. Early tests show that it not only speeds healing but minimizes formation of scar tissue.

From: The Shell-O-Gram 28(4):6 July-Aug. 1987, Jacksonville Shell Club.

A MORATORIUM ON THE COLLECTING OF LIGUUS

We reprint in part a letter dated August 6, 1987 from the United States Department of the Interior, National Park Service, Big Cypress National Preserve, Ochopee, Florida 33943. The letter was reproduced in the Jacksonville Shell Club's Shell-O-Gram 28(5):11, September-October 1987, and begins:

> Dear Snail Collector:
>
> Since you have previously been issued a permit to collect Florida tree snails (*Liguus fasciatus*) within Big Cypress National Preserve, I am informing you of our decision to place a moratorium on the issuance of such permits. This moratorium will remain in effect until such time the National Park Service makes a determination that permitting the collection of tree snails will not be detrimental to the survival of the species (which) is designated by the State of Florida as a Species of Special Concern...
>
> Some of you have generously donated your time as Volunteers-in-Parks to assist us, and we recognize that most collectors have conscientously completed their collection record sheets. We sincerely appreciate these efforts, and hope that we gain your understanding, support, and assistance for this needed environmental analysis.
>
> As prudent stewards of our natural resources, we must be assured that the harvesting is not damaging the very resources that we are responsible for protecting. In the long term, it is in our best mutual interest to manage for the perpetuation of the species and future public enjoyment.
>
> We regret any inconvenience that this moratorium may cause to your snail collecting, and urge you to continue your assistance by helping us evaluate any and all environmental impacts associated with your special interest...
>
> Thanking you for your cooperation, I remain
>
> Sincerely,
>
> Fred J. Fagergren
> Superintendent

A SLUG REPELLENT FOR YOUR GARDEN?

The common garden slug loves the enticing odors of carrot, tomato and mushroom. But it hates garlic. When scientists at AT&T Bell Laboratories "spike" these favorite foods with garlic, what happens? The slug learns. It alters its memory of the foods it once loved and avoids or rejects them. (From an AT&T Bell Laboratories advertisement in Business Week, May 25, 1987.)

IS WINNING EVERYTHING?

by Dave Green
Central Florida Shell Club

"Is winning everything?" is a question that confronts us in our daily lives. If you're a University of Florida Gator fan, this question is the basis of life itself. In competitive athletics, especially at the high school level, winning "at all costs" has become the driving force since it means financial survival. As an ex-player and coach I assure you that this attitude and mentality exists. Let's face it, fans will not support a loser, and without the fans, no revenue. We have lost the values associated with friendly competition. Our society has forgotten what it means to play "for the fun of it" and "personal honor."

Do their attitudes prevail among exhibitors at shell shows? Are we losing sight of why we chose to exhibit our collections at a show? These questions seem to generate a great deal of concern and interest anong shell show goers. Winning is certainly rewarding and exciting and represents a level of achievement. However, is winning worth the pressure that some people put themselves through in order to reach that level? As an exhibitor in several shell shows around the State of Florida in 1986, I personally observed certain situations where an exhibitor was "teed off" over a judge's decision and in a few cases proceeded to confront the judge with his vengeance. Right or wrong, a judge's decision is final. Why do we subject ourselves to such uncomfortable situations?

I enjoy winning a blue ribbon and hope someday I will be fortunate enough to win a major award like the Dupont or C.O.A. Until that day comes, I am happy just to have an opportunity to exhibit my collection for the enjoyment of others. Winning is not everything in my world, especially in shell competition. Although I have been an aggressive collector for many years, last year was my first year to display competitively. I am proud of the ribbons and trophies that I won, but all of the rewards do not equal the happiness I received in just being there. I HAD FUN!! We forgot the word FUN!! Lucille and I met so many nice folks that will remain life-long friends; we saw many species that I will probably never have the financial position to afford; we saw the creative and artistic work of others; and finally, we had FUN enjoying our major interest, beautiful shells.

It is my hope that more collectors will become involved in competition at shell shows. I only hope that they will not lose sight of the numerous values, besides winning! Strive for excellence, strive to win, but don't feel remorse because you didn't win. Be proud of your collection and the artistic ability you used in designing your display. I did, and although I do not hold a Dupont or C.O.A. trophy, I have increased my knowledge so that some day I will be in a position to win a major award. Remember, "Rome wasn't built in a day," but "Rome fell because of its internal decay."

If winning is that important to you, be patient with yourself and strive to learn what it takes to win!! All of us are "winners," just in different ways. Above all, enjoy the shells in your collection. Be proud of your accomplishments and have FUN!

Everyone can compete!

Central Florida Shell News, January 1987.

THE ESSENCE OF PEARL

by David K. Bulloch

From time's early blush, the pearl has laid claim to the essence of beauty by its symmetry and lustre. Pearlescence is not the exclusive purview of the pearl however; the nacre of many common mollusks hints of fire when light strikes.

However, two genera of bivalves, Pinctada and Pteria, the pearl oysters, outshine their rivals. Pinctada is the source of the pearl of commerce.

How does the color and flash of the inner walls of the pearl oyster arise? The answer lies in the structure of its shell and the physical nature of light.

First things first. Where to find these shining shells? Commercial pearls are taken from species of Pinctada that flourish naturally in the waters off Ceylon and the Persian Gulf and are cultured in Japan. A sesquicentury ago, a brisk trade existed in shell, desired by the west for the manufacture of buttons. Those shells are sometimes found in the cargo remnants of foundered East India trading ships off our eastern seaboard.

Atlantic waters have never produced pearls of commerce nor shell heavy enough to suit the button trade, but the winged pearl oyster, Pteria colymbus, of the West Indies and our warmer coastline, does otherwise have all the attributes of eastern rivals. You can find them attached to sea fans singly or in clumps at the base of sturdy plants, but rarely in water deeper than thirty feet. On the outside, the shell is greenish brown with radiating light bars, on the inside a purplish to silver essence.

The shell is made up of three layers, each built by the mantle, the fleshy layers that lie against the shell's inner wall. The mantle does a multiplicity of tasks; it constructs, pumps water past the gills and senses what's going on nearby.

The outer mantle first produces a tanned protein, which becomes the outer horny periostracum. On the inner surface of the periostracum, in an open lacework of protein, the first layer of calcium carbonate is laid down as the mineral calcite.

Later, the inner mantle adds another calcium carbonate layer on the inside of the shell. In Pteria, it is another form of calcium carbonate, aragonite.

But what makes the shell so glistening and so colorful? It's the way in which the aragonite layer is constructed. Unlike the outer layer, which is built in columns perpendicular to the shell wall, the inner layer is laid down in ultra-thin plates. You can see this with the help of the scanning electron microscope.

The plates are translucent and so thin they interfere with the light striking them. Thus the light is not only reflected creating the silvery lustre but is colored by the same physical mechanism that accounts for the colors of an oil slick on water.

So the revealed nature of the shell's beauty lies in detail beyond that which our eyes can resolve. But the mind can enjoy both — the art and science of nature are equally rewarding.

Underwater Naturalist 16(4):20, Oct. 1987

HIGHLIGHTS OF THE SEPTEMBER MEETING

With no pressing business to be considered, President Ed Cowles introduced the speaker for the day, Dr. Donald Bosch whose subject was the shells of, and shelling in, the Sultanate of Oman. He started by explaining that he had become a long-term resident of Oman by having been assigned there by the mission society of the Reformed Church in America. As a medical missionary he entered a country that had no medical establishment and served as its doctor. Eventually, by advising the government and training individuals, he built an excellent medical establishment.

For much-needed recreation, he and his wife and children often walked the beaches, thus developing their first interest in shells. The number and variety that they encountered moved him to write to the American Museum, to learn if the mollusc department was interested, and if it could offer advice to new collectors. Bill Old responded immediately by cable, and followed with a long letter. As a result, the Bosch family developed into an important link in the malacological chain, even to the extent of discovering several new species.

He noted that Oman has 1,000 miles of coastline, on the Persian Gulf and the Gulf of Oman, adding that the molluscan fauna of the two are considerably different, because the Persian Gulf is warmer, saltier and shallower. His slides depicted the variety of coastal habitats - beach, coral, rocks, and areas of steep drop-off. As for richness and variety of fauna, Oman is home to 32 species of Cypraea. Dr. Bosch recalled that he didn't locate C. pulchra until he happened to describe it to an elderly local man who had been blind for many years. The man said he remembered having seen the shell, and that he could guide Dr. Bosch to its locality - by boat! As unlikely as this sounded, they set out, and the blind guide proved that he knew his capabilities.

Dr. Bosch's slides included a number of shell close-ups, including one of a Cypraea turdus eating the periostracum off a Conus. In describing and identifying bivalve shells, he noted that there are 200 known species in Oman's waters.

The door prizes were a Harpa major, won by Linda Ciaston, and a Hippopus hippopus, won by Al Scarpetti.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE OCTOBER MEETING

The Shell of the Month was an Astraea brevispina that had been collected from a fish trap off Jamaica. It was displayed and described by Ed Cowles.

Ed again mentioned the possibility of a bus trip to the Delaware Museum of Natural History. Nancy McTiernan, who had said she would check into possible dates and the availability of a small bus, was not present to report on the matter.

The door prizes were a Murex dilectus, won by Bernard Kinsey, and a Cypraea talpa, won by Dr. John Bockleman.

The speaker was Dr. Robert Robertson, of the Philadelphia Academy of Natural Sciences. His subject was The Natural History of Malacology. He opened by admitting to having had qualms about attempting so broad a subject in a talk.

His own interest in shells began when he was a boy, living in the Bahamas. As he became more and more fascinated, he recalled, his father asked, "What is all this going to lead to?"

As a matter of special interest to NYSC members he described, among his valued contacts, those with Karl Jacobson and Bill Old, showing slide photos of both. He then noted that the term conchology originated, in the French language, in 1742. He attributed the term malacology to Rafinesque in 1814.

Turning to the animals themselves, he discussed, with the aid of slides, the various types of body structure, left-handedness, the formation of shell material, radulae, the types of operculums, the effects of diet on shell shape and color, male-female shell differences, and veligers. He recalled having straightened out the egg mass of a Strombus gigas, finding that it stretched to 97 feet.

Dr. Robertson noted that he is working on a book on the marine mollusks of the Bahamas, with two co-authors who are amateurs. Commenting on the importance of amateurs in the advancement of malacology he showed a photo of Dorothy and George Raeihle, who have made many contributions to knowledge.

Milton Werner, Recording Sec'y.

HIGHLIGHTS OF THE NOVEMBER MEETING

President Ed Cowles announced that entries for the Morris K. Jacobson Scholarship for Molluscan Studies, offered annually by the Astronaut Trail Shell Club, are due by January 15. He also drew attention to a list of meetings and field trips of the American Littoral Society.

Ed then introduced Irene and Adlai Wheel, of Syracuse, who have been corresponding members for 25 years. Adlai asked for a few minutes to address the Club, and did so with a brief explanation of his activities over many years in working with young people, chiefly by interesting them in natural history subjects. To this end he has assembled a collection of shells, rocks, artifacts and oddities. He noted that four boys and one girl from his club went on to become graduate geologists. Another boy earned a Ph.D. in chemistry and another works for the Voice of America. He related how he has tried for 50 years to persuade the city of Syracuse or Onandaiga County to establish a natural history museum, offering his collection as a nucleus. He added that he would be grateful for donations of shells to broaden his collection.

The door prizes were an Oliva porphyria, won by Al Scarpetti, and a Murex regius, won by Eli Horowitz.

Theta Lourbacos noted that it is not too early to start work on the April meeting, adding that Marty Gill, who had been our auctioneer, has moved to Florida. She added that the Club should send letters to dealers in December, to ask for donations, and that a list of shells to be auctioned should appear in the NOTES of March 1988. We also should have confirmed donations of cakes and other refreshments, and work volunteers are needed. It was decided that Walter Sage, Nick Katsaras and Al Scarpetti will sort shells before the January meeting.

The scheduled speaker did not appear, but Walter Sage, fortunately, brought the slides intended as the program material for the March meeting, so he was able to fill the gap. The slides are from Bill Old's collection, and Walter had selected a large group of shell photos. Most of the specimens are rare, or were once rare, and Walter described them and told something of their histories.

Milton Werner, Recording Sec'y.

DO SEA SLUGS PACK A WALLOP AGAINST CANCER?

Marine researchers have learned one valuable lesson while hunting for new drugs and chemicals: The lowest creatures often carry the most potent substances. Take the sea hare. Because this slow-moving slug lost its shell to evolution millenniums ago, it carries a deadly poison to protect itself from predators. What really has the biomedical community excited is that this toxin also seems to be lethal to tumor cells.

Researchers at Arizona State University, led by chemist G. Robert Pettit, have extracted small amounts of the toxin from a ton of sea hares and turned it over to the National Cancer Institute. The toxin "shows a lot of activity in the test tube," says Mathew Suffness, director of NCI's natural products branch. But the agency still doesn't have enough of the material to run live animal tests. So Pettit's team is trying to synthesize the poison so it can be produced in quantity. That research has already led to a startling discovery: Four of the toxin's five key chemical constituents had never before been identified. Learning more about these compounds may help scientists boost the cancer-killing power of other drugs.

reprinted from Developments to Watch,
p. 149, BUSINESS WEEK, November 16,1987

DOVER NATURE BOOK CATALOG
Fall/Winter 1987

A number of books on shells, seashores, etc. are listed, among which (listed as 'new') is SHELLS FROM CAPE COD TO CAPE MAY: With Special Reference to the New York City Area, by Morris K. Jacobson and William K. Emerson. DOVER PUBLICATIONS,
31 East 2nd Street
Mineola, N.Y. 11501

GEORGE RAEIHLE
1904 - 1987

New York Shell Club lost a valued member and cherished friend with the passing of George Raeihle on November 19. George and Dorothy have been members since 1956 when they went to the American Museum for information about shells; this was provided by Dr. Emerson who also told them about the Club, which they promptly joined. Through all the years of their active membership, George and Dorothy were part of the fabric of the New York Shell Club, and they were made Honorary Members in January, 1986.

George was a trained artist and designer and worked in that field for many years until his retirement in the 1970's. His photographs have appeared in many well-known publications, such as SHELL DESK DIARY, and Abbott's AMERICAN SEASHELLS.

For NYSC, George and Leonardo Hernandes designed our pin, and George designed our logo and the cover for #200 NOTES, as well as doing a great many illustrations for the NOTES over the years. George's special contributions were the products of his craftsman's hands and artist's eye, and his questing mind and buoyant spirit. Not only Club meetings, but also its life and achievements, were enhanced by his devotion and presence. George, with his good judgment and freely-offered talents, his openheartedness and wit that lighted both work and diversion, was one of those whose doing and being shaped the character of the Club. We will miss his magnificent photography, his exquisite displays, and his knowledge and his spirit of inquiry. Even more, we will miss George.

On November 25, after cremation, a boat made the trip out beyond Fire Island Inlet, and George's ashes were dropped into the water accompanied by flower tributes.

The Club extends its sympathy to our editor and friend, Dorothy Raeihly.

Milton Werner

Note from the non-expert substitute for our editor: -

During the months since the last issue of the NOTES, Dorothy proceeded with her work on this issue in spite of increasing worry about George's health. By the time of his last hospital stay, she had finished the first 14 pages, and prepared the material for the rest. It is due to her work under the most trying circumstances that it was possible to finish the NOTES on schedule. Thank you, Dorothy.

tl

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #2CC
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, AL SCARPETTI

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History, except in April when our annual social and auction is held on other premises.

MARCH 13, 1988, at 2:00 p.m. American Museum of Natural History.

LAND SHELLING IN JAMAICA, Richard Goldberg

APRIL 10, 1988 OUR ANNUAL SOCIAL AND AUCTION.
SEE ENCLOSURE FOR DETAILS !!

MAY 8, 1988, at 2:00 p.m. American Museum of Natural History.

SHELLS OF WEST MEXICO, Avis Sosa (originally scheduled for the November meeting)

CONTENTS

		Page
Honors to Dr. William K. Emerson	AMU News	2
Welcome to Palmetto Shell Club	Amer. Conchologist	2
Additional information Shows & Meetings		2
Of Chesapeake Bay and Calvert Cliffs	NCSC Newsletter	3
Publications:		
Fossils of Calvert Cliffs, by Ashly	AMU News	4
Reprints: Boltenianum, Rafinesque	Richard Petit	4
Seashells of Brazil, by Rios	R. T. Abbott	5
Checklist Marine Gastropods of Puerto Rico, by Ortiz-Corps	R. T. Abbott	5
Sources of Information on Mollusks compiled by Gold with Rosewater	Dept. Mollusks USNM	5
Collections:		
Teskey to Florida State Museum	News Release, RTA	6
Teremachia holotype to AMNH	AMNH Annual Report	6
Barlow, Juster, Vaught to AMNH	AMNH Annual Report	7
Descriptions of Living Cypraea	Dave Green	7
From the Age of Dinosaurs: Inoceramus	Courier Journal	8
1989 AMU-WSM Meeting date	AMU News	8
Hometown Shelling	Pamela Scott	9
Sanibel restricts live collecting	Thatcheria	10
New Jersey State Shell	AMU News	10
The Errant Paper Nautilus	Francois Sarano	11
Going South? Come Shell Carolina!	Steven M. Rosenthal	13
Obituaries:		
Dr. Victor Lyon Loosanoff	Dr. James E. Hanks	14
William D. Bledsoe	D. Raeihle	14
Lois C. Rehder	D. Raeihle	14
Meeting Highlights, December, January, February	M. Werner	15,16,17
Annual Social/Auction		18

HONORS TO DR. WILLIAM K. EMERSON

Dr. James C. Kelley, President of the California Academy of Sciences, recently announced the election of twelve new Fellows, and four Honorary Fellows including Dr. William K. Emerson of the American Museum of Natural History, to the 134-year-old Institution in San Francisco. His election to Honorary Fellow was in recognition of his contributions to science.

Dr. Emerson is the Curator of Mollusks at the American Museum of Natural History in New York. His research career has focused on the systematics and biogeography of eastern Pacific mollusks. Dr. Emerson and the other new Fellows were honored at a dinner in early October at the California Academy of Sciences in San Francisco.

* * *

Dr. William K. Emerson was elected to Honorary Life Membership in the American Malacological Union at the society's meeting last June, "In view of his years of service to the American Museum of Natural History and his outstanding contributions to malacology and the American Malacological Union." Dr. Emerson served as President of the AMU in 1961-1962 and for a number of years was a member of the AMU Executive Council.

Dr. Emerson received his Ph.D. from the University of California, Berkeley. In 1955 he came to the American Museum, where for over thirty years he has contributed to the advancement of malacology — during his tenure, the AMNH mollusk collection has quadrupled in size and scientific importance. He has published over 120 professional papers and a number of popular papers and books on mollusks and other invertebrates.

Adapted from AMU NEWS 18(2):12, 13

WE WELCOME A NEW SHELL CLUB

The Palmetto Shell Club of Columbia, South Carolina, was born on August 13, 1987, with thirteen members. By December, membership had increased to forty-three and was still growing! Already there have been field trips to Wilmington, North Carolina, and to Edisto Island, South Carolina.

Meetings are held the second Sunday at 3:00 p.m. at the Seven Oaks Park near Irmo, a suburb of Columbia. President of the new club is Carol C. Boswell, 155 Dorset Drive, Columbia SC 29210. Telephone: (803) 772-1906.

American Conchologist 15(4):20

SHELL SHOWS AND MEETINGS

Additions to the announcements in NYSC NOTES No. 305, pages 3-5:

April 8 - 10	Dates of the Greater Georgia Shell Show, Atlanta.
July 17 - 21	The Western Society of Malacologists will hold their annual meeting at Sonoma State University, Rohnert Park, California. Contact: Dr. Matthew J. James, President, Dept. of Geology, Sonoma State University, Rohnert Park, CA 94928. Phone: (707) 664-2301/2334.

OF CHESAPEAKE BAY AND THE CALVERT CLIFFS

EDITOR'S NOTE: Once you have collected a fossil shell you must be curious to learn how it got there - in the gorge, or in the cliff, or well inland, or deep underground. First thing you know, you find yourself interested in some study of geology.

Many beautiful and interesting fossil shells are lodged in the Calvert Cliffs of Maryland. The site is a favorite for field trips out of Washington, D.C. and other not-so-near areas. The Newsletter of the National Capital Shell Club, pp. 13-14 of Issue 91, Winter 1987 (Joe C. Hayes, Editor) reports a presentation on the formation of this fossil-rich area: (—DR)

NOVEMBER MEETING Dr. Ralph Eshelman came from the Calvert Marine Museum to tell us about the formation of Chesapeake Bay and about the Calvert Cliff fossils and how to collect them.

The Cliffs were first mentioned in history by Captain John Smith in 1608. To Eshelman they are natural beauties and are unique. There are few places south of Martha's Vineyard where such formations can be seen.

In a few statements about continental drift he pointed out that a section of west Africa, if pushed into the Gulf of Mexico, would make a neat fit, assuring that they were once together, long ago separated by the drift of continents. The earth's crust is constantly changing over geologic time even if it can hardly be seen in a lifetime.

We know, he said, that the shoreline in the Bay area was once much farther out. The continental shelf runs well out into the ocean now, on a gradual slope, until it drops suddenly into the great Atlantic deeps. The shelf runs 50 to 100 miles off the Bay, meaning that continental America really extends to the edge of the shelf even if it is under water these days.

When the Settlers came to America they went just as far as they could by water. They went to the "fall line" of the rivers which marked the end of the sedimentary and soft rock formations and the beginning of hard rock mountains. They depended on water power. One can see the sediments below the fall line in layers which mark the different geologic times when they were deposited.

The Chesapeake Bay was in formation 10 to 12 million years ago: that was when the main sediments were laid down. The area was a shallow sea, known as the Calvert Sea, and its sediments comprise the Calvert formation.

A second sea came in after the Calvert and was named after the Choptank River. Its sediments made up the Choptank formation. The third sea was St. Mary's Sea and produced its namesake formation. The fourth was the Yorktown Sea which created the Yorktown formation running all the way down to parts of North Carolina.

Now to the Great Ice Ages, the Pleistocene, from about 2 million years ago to as late as 10,000 years back, when the great glaciers came down over the Great Lakes area, New York, Long Island, and farther south. These continental glaciers ground down as late as 16,000 years ago and came this far south, to just north of the Chesapeake.

The sea level 15,000 years ago was some 140 meters below where it is now, most of the way out to the edge of the continental shelf. To get to the ocean one would have had to go more than 80 kilometers out from today's shoreline.

The animals that lived in and around these seas, especially the Calvert, were large whales similar in many ways to our gray whale, one whale something like the killer whale we know, and big pelican-like birds with wingspreads ranging from 15 to 22 feet! As for land animals, there were elephants, lions, camels, hippos, rhinos, a large deer now extinct, horses, zebras, wild pigs and still others that one would expect to find in Africa - but they were all here. Fossil parts of these animals can be seen at the Calvert Museum and no doubt can still be collected from the Cliffs or out in the deeper waters. Dredgers still bring up bones of animals that lived there.

An interesting note: the horse originated in America, migrated to Europe, became extinct in America, and then was brought back home!

If the settlers had come to Calvert Cliffs 17,000 years ago, they would have stood more than 150 feet above a river valley, not a bay. The Susquehannah River and its tributaries were flooding along then and creating a classic version of an estuary, which is really just what Chesapeake Bay is. By 17,000 years ago, the Bay was beginning to have some of the characteristics we see now. It has actually been a bit higher - or deeper - than it is now.

Through charts, Dr. Eshelman illustrated the glacial periods and the melting times that have done their work in the area. We are in a warming period now, probably aided by the so-called "greenhouse effect," and we may get some notable coastal flooding. The freezing periods of the past caused the Chesapeake to disappear, only to return again as the melting arrived. Today's Bay is somewhere between the 7th and 27th Bay thus created, lost, and again recreated.

He showed a set of slide illustrations on how to protect and remove a vertebrate specimen from its matrix and get it back to a suitable work place where it might be "liberated." No doubt an invertebrate specimen equally fragile could be saved by the same techniques.

He closed by showing us some recommended publications on fossils and inviting us to visit the Museum, assuring that if you collect fossils at the Cliffs, you can identify over 99% of them by studying the Museum specimens.

PUBLICATIONS:

FOSSILS OF CALVERT CLIFFS

(Miocene of Maryland), 2nd edition, by Wallace L. Ashby. Solomins, MD, Calvert Marine Museum, 71987, $5.25.

First published in 1979, now in updated and greatly expanded second edition.

AMU NEWS 18(2):9

AMU REPRINTS: (1) BOLTENIANUM, (2) RAFINESQUE

The first in our reprint series of out-of-print molluscan literature is now available. This is Röding's 1798 Museum Boltenianum, a reference that must be used by all molluscan taxonomists. The work consists of viii + 199 pages, and is softbound. The price is

$20.00 to non-members, $15.00 to members of the American Malacological Union.

A supply of the 1985 reprint of Binney & Tryon's 1864 The Complete Writings of Constantine Smaltz Rafinesque, on Recent and Fossil Conchology has been given to the AMU Reprint Committee. This reference consists of 96 pages, 3 plates, plus index, and is softbound. The price is $8.00 to non-members, $6.00 to AMU members (one copy at discount price per member, please, on these two and future reprints).

Order from Paula Mikkelsen, AMU NEWS Editor, Harbor Branch Oceanographic Institution, Inc., 5600 Old Dixie Highway, Fort Pierce, Florida 34946. [Telephone: (305) 465-2400, Extension 428.]

Please send payment with order and add the following per copy for postage and handling: $0.50 domestic, $2.00 foreign surface, or $4.00 foreign air mail. Make checks payable to "American Malacological Union."

Richard E. Petit, Finance Chairman AMU
in AMU NEWS 18(2):12, November 1987.

NOW AVAILABLE:

SEASHELLS OF BRAZIL

Another small shipment of Dr. Eliezer Rios' new SEASHELLS OF BRAZIL has just arrived. The price is now $30.00, plus $2.00 for mailing. Order early while this supply lasts. Earlier requests for this book will be honored first.

Also:

AN ANNOTATED CHECKLIST OF THE RECENT MARINE GASTROPODA FROM PUERTO RICO

For Caribbean enthusiasts, we still have on hand copies of Ortiz-Corps excellent checklist of Puerto Rican marine gastropods. published in 1985, 220 pages, paperback, $9.00 plus $1.00 mailing.

Order either or both of these volumes from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Please enclose payment with the order.

RTA

SOURCES OF INFORMATION ON MOLLUSKS

Compiled for the Division of Mollusks, USNM, by Joy P. Gold with the advice of Dr. Joseph Rosewater. 1983. 42 pages plus Contents and Preface, 9"x12". Free. Department of Invertebrate Zoology (Mollusks), Smithsonian Institution NHB, Washington, D.C. 20560. We quote from the Preface:

"Sources" is divided into several sections; the first lists books which are particularly helpful to new and young collectors especially in identifying specimens and for general information on mollusks. In most cases, books found in the Regional section will help identify shells from a particular part of the world. Other sections include fossils, shellcraft, collecting, directories and journals, shell clubs and the location of larger collections of mollusks in the United States. Names of shell dealers and prices of publications have been eliminated from this issue of "Sources" since both are subject to frequent changes.

The publications listed are not available from the Smithsonian Institution unless otherwise noted.

TESKEY COLLECTION ENHANCES FLORIDA RESEARCH

The unique collection of mollusks assembled by Margaret C. Teskey, the former Secretary of the American Malacological Union, has recently been donated to the Florida State Museum at the University of Florida in Gainesville. The valuable collection, consisting of many hundreds of minute and shallow-water species with good locality data is now being curated in the research facilities at the Florida State Museum.

Mrs. Teskey, now a resident of Beaverton, Oregon, spent a dozen years in the Florida Keys sampling obscure populations, some located at the now-protected Looe Key. Friends have also rushed to her aid to supply funds for the curating of this valuable resource for future research.

"Our emphasis in the past has been on non-marine mollusks," said Dr. Fred Thompson, Curator at this major Florida museum, but recent developments are pointing towards a more active role in Florida's rich marine fauna, both living and fossil." The Director of the museum, Dr. Peter Bennett, intends to increase the public's awareness of Florida's marine shells "through new exhibits, the addition of a marine malacologist to the staff and increased cooperation with both amateur and professional mollusk field activities."

NEWS RELEASE of February 17, 1988
Contact: Dr. R. T. Abbott, Melbourne, FL

COLLECTIONS TO THE AMERICAN MUSEUM OF NATURAL HISTORY

(Barlow, DuShane, Juster, Vaught; Duprey)

From the 117th Annual Report of the AMNH rec'd 1987, pp. 27,29,80:

DEPARTMENT OF INVERTEBRATES

The Department of Invertebrates is devoted to research into the systematics, evolution and ecology of living and fossil non-vertebrate multicellular animals. The genealogical and environmental diversity of this segment of life is truly vast. Though significant holdings of nearly all fossil and Recent invertebrate groups are maintained in the collections, research activities of the staff are necessarily more narrowly focused. Research concentrates on marine invertebrates, the inhabitants of modern and ancient seas. Important discoveries were made about fossil and Recent gastropods (snails) and clams, the extinct ammonites and their closest living relative, the pearly nautilus, bryozoans ("moss animals"), nemerteans ("ribbon worms"), trilobites, brachiopods and crustacean physiology and microbiology. The connection was stressed between biological facts and the development of a coherent body of theory to explain the evolution of life on Earth.

Major Acquisitions

There were 94 accessions to the collection of living mollusks, with a total of 7554 lots and approximately 21,700 specimens. Notable among these accessions were:

> The gift of Constance K. Duprey of the holotype of Teramachia dupreyae Emerson — a spectacular new species of volutid gastropod trawled in deep water well off the northwestern coast of Australia. It was described in THE NAUTILUS 99(4):102-107, 1985, and named in honor of the donor.

The important collections donated by Alice Denison Barlow — 9251 marine mollusk specimens in 3891 lots; by Helen DuShane — 535 mollusk specimens from Panama Bay; by Leon Juster and Mrs. Ruth Juster — 1297 marine mollusk specimens (worldwide) in 290 lots; by Kay C. Vaught — 164 lots Cymatiacae, 10 lots Columbariinae, 1109 marine mollusk specimens in 527 lots (Cypraeidae).

FOOD FOR THOUGHT

Do you have in your collection any scientifically important specimens that would be merely baubles to your heirs? Think about it!! (—Ed)

DESCRIPTIONS OF LIVING CYPRAEA
aurantium, _tigris_, _argus_

Perhaps the best known and certainly one of the most admired shells in the family Cypraeidae is the "golden cowrie," _Cypraea aurantium_ Gmelin, 1791. It has been called the Royal Shell, as it was a symbol of chieftainship in the Fiji Islands. Although it is still considered a semi-rare shell, the "golden cowrie" is still showing up in increasing numbers.

The distribution of _Cypraea aurantium_ ranges from the Northern Marianas Islands, south of Japan, southward through the Philippine Islands, eastward throughout the Central Pacific down to the Solomon Islands and as far as French Polynesia.

Cypraea aurantium is normally found in deep caves in the reef in 30 to 90 feet of water. According to C. N. Burgess in his COWRIES OF THE WORLD, it is sometimes found in shallow water after storms.

The animal of _Cypraea aurantium_ is a brilliant dark orange-to-brown mottled throughout and intensified on all sides towards the mouth edge. _Cypraea aurantium_ has a thick mantle covered with hundreds of white papillae. The siphon has a short scalloped fringe that comes to a point, and the tentacles are bright orange-yellow with a smooth white edge.

* * *

The real beauty of _Cypraea tigris_ Linnaeus, 1758 is the animal itself. The mantle is striped longitudinally with dark gray and light yellow-gray. It is also blotched with yellow and brown, corresponding to the spots on the shell. The papillae are white at the base, yellow-gray in the middle, and have white tips. The tentacles are gray-black and the siphon is yellow-gray. The foot is mottled yellow-gray with a white edge. I feel the living animal is one of the most beautiful of marine mollusks.

Its domain is the Indo-Pacific. It is found under coral rocks.

* * *

Cypraea argus Linnaeus, 1758 is the only cowrie with a pattern of rings or "eyes" on the dorsum of the shell.

The animal of _C. argus_ ranges from dark brown to almost black and has a thin, smooth mantle covered with many long-branched grayish-brown papillae. The siphon and the foot are also grayish-brown; the tentacles are thick and tapered and almost pointed at the ends; and the aperture is narrow at the posterior canal and widens at the anterior canal. The shell can range from a grayish light brown to dark brown with numerous dark brown rings or "eyes."

C. argus is found in the S. W. Pacific and Indian Oceans.

* * *

Wagner and Abbott's Standard Catalog gives the world size records for these three Indo-Pacific as: C. argus, 10.70 cm, a specimen from Australia; C. aurantium, 11.72 cm, taken in the S.W. Pacific, and a C. tigris from Hawaii of 15.29 cm.

The above descriptions of living Cypraea are by Dave Green, from his Shell of the Month series in Central Florida Shell News, 1987, 7(9):4, 8(2):3, 8(3):6, Orlando, Florida.

FROM THE AGE OF THE DINOSAURS?

We have found an interesting clipping, dated August 27, 1986, of an Associated Press dispatch reporting a remarkable molluscan find. Unfortunately the accompanying photograph was not of suitable quality for reproduction in these NOTES. We quote from the report:

William Zinsmeister is happy with his clam. Zinsmeister, a Purdue University scientist, found the 75 million-year-old specimen on July 2 on Ellesmere Island in the Canadian Arctic, 600 miles from the North Pole. The fossilized fragments indicate that the clam was more than 5 feet across, possibly the largest in the world, Zinsmeister said.

He had to get a special export permit and shell out $2,000 in air freight costs to bring the clam home. He will return it to Canada when he finishes his study.

The fossil — genus Inoceramus — will tell Zinsmeister if he has discovered a new species of giant clam.

In the above article, the popular name "clam" is synonymous with "bivalve." The enormous specimen shown in the photograph had a shape and growth lines resembling an oyster (Crassostrea).

From Webster's International, Second Edition: Inoceramus (In'o-cer'-a-mus): A genus of large bivalve mollusks of the family Aviculidae, especially characteristic of the Cretaceous. Aviculidae: A family of pearly-shelled bivalve mollusks (suborder Pectinacea) comprising the pearl oysters, hammer shells, and allied forms.

dr

LOOKING AHEAD TO 1989

The 1989 meeting of the American Malacological Union will be a joint meeting with the Western Society of Malacologists (Dr. Hans Bertsch, President) at Los Angeles, California, Sunday June 25 through the following week. Meetings will be scheduled at the Davidson Conference Center at the University of Southern California, with some events to be held at the Los Angeles County Museum of Natural History. A choice of housing will be offered: university dormitories or the nearby University Hilton. A wide selection of restaurants is available in the area.

AMU NEWS

HOMETOWN SHELLING

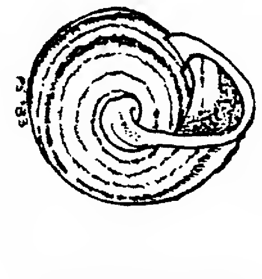
Pamela Scott
St. Charles, Illinois

As any midwesterner can tell you, shelling in our land-locked area can seem to be a terribly frustrating experience. There are ways around the problem, however, one of which I discovered one spring morning as I was reading through an article in my local newspaper. It seemed the Park District had discovered, and was hoping to restore, a fen, or bog, in a wooded area just beyond an open meadow near the river (the Fox) which runs through our town. The fen, it read, was filled with some fairly rare types of plant life not usually found in fresh water areas. Living among those peat mounds, fungi, mosses and reeds were crayfish and SNAILS!

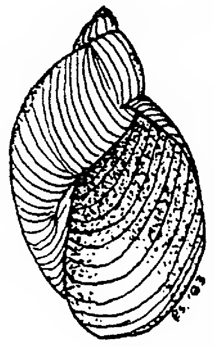
Blessedly, I have an extremely patient and adaptable husband, and within half an hour we were standing on the overgrown path leading into the fen. It was eerie walking into that bog. Within three steps from the entrance we found ourselves in another, seemingly more primitive world, one of heavily filtered sunlight, odd vegetation and a spongy terrain, which became nearly impossible to walk on without sinking in ankle-deep as we neared its center. There was an old silo foundation there, too, smack dab in the middle of this oozing land. We wondered aloud where the companion house and barn had gone to.

Within minutes our shoes were caked with mud, making walking very awkward. But, to me at least, this was no problem because we found hundreds of snails in the undergrowth, many of which were dead and in excellent condition.

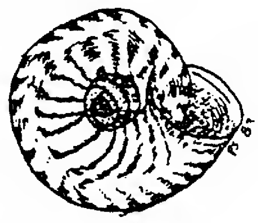
We happily gathered up several of the empty shells lying there, leaving the live animals to go about their business. We were only able to find two species there that day - Succinea ovalis Say and what I believed to be Cepaea nemoralis (Linné), although it is not listed as an Illinois species by the U.S. Fish and Wildlife Service. But after cleaning, the "Cepaea" in question turned out to be a very attractive Triodopsis multilineata (Say). It sports a pattern of dark reddish-brown stripes on a cream to horn color background, with a white lip, and measures about 1" in width and 1/2" in height.



TRIODOPSIS
MULTILINEATA



SUCCINEA OVALIS



ANGUISPIRA
ALTERNATA

Encouraged, we then moved on to a heavily wooded area a mile or so from the river. A creek runs through these woods where centuries ago Pottawattomie Indians hunted. The earth is good and dark, there are many, many trees, mainly elm, ash and oak, and evidence can be found there of deer, raccoons, and foxes. We carefully checked the edge of the creek for clams or mussels but, unlike other visits, found nothing but small pieces of shell. However, under a fallen log about 20 feet from the stream we were able to find quite a number of Anguispira alternata (Say), with their beautiful shape and patterns, and a few of the succineid Oxyloma retusa (Lea). In addition, we found two very tiny high-spired brownish snails that I have been unable to identify.

We decided to try one more, entirely different area before calling it a day. Driving back closer to town we stopped by a small lake hidden from the road on three sides by low hills, yet easily accessible from the parking area of a factory. There, on reeds in the still water, we found Helisoma trivolvis (Say). There were several of these boxy snails lying dead along the shoreline, most of which were in terrible condition. We were able to find just two which were fresh dead and took those for our collection.

Once home we carefully cleaned our shells, then sorted and numbered them for later identification. We were tired from our adventures that day, but still excited over our finds and very proud of our few specimens. We're looking forward to a weekend of exploration of other areas of our county someday where we may find other species unavailable in our own city.

Reprinted from the Chicago Shell Club Newsletter THATCHERIA 20(4):7-8, April 1985.
(The Scotts now live in shell-rich Florida.)

SHELLING IN SANIBEL, FLORIDA

Late last year the Governor of Florida signed a bill prohibiting the collection of more than two live shells per species per day in city waters up to 300 feet off shore. The law pertains only to living mollusks and echinoderms but excludes oysters, hard clams, coquinas scallops and venus clams. Shellers are welcome to take any shells from the shoreline that do not contain a live mollusk or echinoderm (sand dollars and sea urchins). The Florida Department of Natural Resources (DNR) can issue permits to those who want to harvest species within the city limits of Sanibel for experimental scientific or exhibition purposes.

When shelling away from home it is always best to find out what the local rules and regulations are!

THATCHERIA 23(2):2, February 1988
Njara Stout, Editor

NEW JERSEY STATE SHELL

A brief report on page 4 of the AMU NEWS of November, 1987:

> "New Jersey has adopted the quahog* clam, Mercenaria mercenaria, as its official shell."

*The name "quahog" is of Algonquian origin, the Indian name being variously recorded as "p'quaughhaug," "poquahoc," "poquahauges." In 1843 DeKay wrote of Venus mercenaria: "Its aboriginal name of Quahog has now fallen into disuse." !

D. Raeihle

THE ERRANT PAPER NAUTILUS
Francois Sarano

(Reprinted from The Cousteau Society's CALYPSO DISPATCH 9(4):1-2.)

While many of us have been intrigued by the delicate white shells of paper nautiluses (Argonauta argo) which occasionally wash up on the beach, few of us have been able to swim alongside this curious cephalopod. Yet the Cousteau crew was privileged to encounter paper nautiluses in the waters of the Poor Knights Islands during the New Zealand REDISCOVERY expedition.

On December 13, 1986, CALYPSO dropped anchor northwest of Archway Islet, one of the smallest islets which, together with the two main islands of Tawhiti Rahi and Aorangi, form the Poor Knights Archipelago (35° 30' S and 174° 44' E). Only twelve miles separate these islands from the New Zealand mainland, yet the underwater fauna is very different from that of the coast where cold-water benthic fish dominate: marbled fish (Aplodactylus meandratus), kelpfish (Chironemus marmoratus), and red porgies (Chrysophrys auratus), a particularly voracious meat-eating fish. In contrast, along the submerged cliffs of Northern Arch (north of Tawhiti Rahi), I was able to observe a tropical fish, the Lord Howe butterflyfish (Chelmonops howensis), parading in a forest of brown algae.

The high cliffs of these islands resemble Swiss cheese carved into grottos and caves, hollowed out into incredible arches. The East Auckland current, a warm northern branch of the Tasman current, bathes these cliffs, raising the water temperature by one to two degrees Celsius above that of the nearby coast. We recorded a temperature of 19° C (66° F), warm enough to sustain subtropical species carried by the current to foreign waters. It was bizarre to see tropical butterfly fish in the midst of kelp.

Situated on the continental shelf within range of the open sea, the Poor Knights Islands are blessed with a surprisingly diversified fauna from temperate, cold and subtropical areas, as well as coastal and open-sea regions. Consequently, the Poor Knights Islands are also visited by deep-sea species, large pelagic fish and the paper nautilus.

In fact the paper nautilus, closely related to the octopus, is a true pelagic, drifting close to the surface in the open sea. To reproduce, the female secretes and builds a delicate, white calcareous shell using her two specialized tentacles. The much smaller male never forms a shell. The female withdraws into this fragile fortress with her eggs and will stay until the young hatch. Her life is then totally devoted to protecting and oxygenating with a steady flow of water the eggs which are attached to the upper base of her head. Only her eight tentacles are visible outside the delicate shell.

Although the paper nautilus is able to propel itself rapidly by shooting water through its siphon, it usually just drifts in its shell near the water's surface, at the whim of wind and water. Pushed by the winds and carried by the current which runs the length of the Poor Knights, paper nautiluses, encased in their fragile armor, are carried near the coast to their doom.

Spurred on by the springtime explosion of plankton, birds and fish await the nautilus. Indeed, just before summer, life is born anew in these temperate waters. With warmer water and nutrients brought up colder water rising from the deep, microscopic phytoplankton grow and multiply rapidly, forming rich marine pastures. In turn, all kinds of larvae and small crustaceans invade the surface waters to graze on these algal fields. These miniscule creatures form huge reddish clouds which cover the blue ocean surface. Flying in a helicopter, we found such clouds which, after sampling, proved to be an incredibly thick mush of mysis larvae. We were at Poor Knights at the right season.

All around CALYPSO shoals of blue sea bream (Scorpis violaceus), their mouths open, spent the whole day skimming the plankton-rich waters. The same frantic activity was seen underwater. During dives we observed hundreds of damselfish (Chromis longimanus) and pink perch (Caprodon longimanus) swimming against the current, waiting for the planktonic clouds carried by the flow of the tide.

The large arches of the Poor Knights Islands channel the tidal currents and thus concentrate the food carried along. Consequently, fish group together by the thousands in the shadows of these arches. When the water is still, they form shoals so thick that light can hardly penetrate, causing them to look like strange, rocky appendages extending the walls of the grottos out into the middle of the channel. In contrast, at high and low tides, the fish gather at the entrance of the arches, maneuvering in the current, lying in wait. Nothing escapes their scrutiny; everything is devoured. In a few seconds, they shred the jellyfish carried by the current, leaving only torn pieces of evanescent bodies.

A similar fate awaits the paper nautiluses that drift near the coast. Thus, while flying above a veritable graveyard of grotesquely broken, empty shells, we were powerless and uneasy witnesses to an incredible drama which depicted the struggle for survival inherent to all life on this planet. About a dozen large wrasses (Coris sandageri) and red hogfish (Bodianus vulpinus), their tiny mouths stretched wide, showing their teeth, attacked a paper nautilus. With its tentacles and beak extended, the nautilus hopelessly tried to protect its eggs, scorning the mutilations of each bite. In a flash, a tentacle was torn off; then the shell was broken from behind. In a few seconds the paper nautilus was ripped from its fragile shell and devoured by the frenzied fish contending for shreds of flesh. Slowly, like a dead leaf, the white shell sank to the bottom, joining dozens of others that decorated the kelp like ghostly Christmas garlands.

A second paper nautilus was about to undergo the same fate. Transgressing the laws of non-interference, I rushed in to disperse the fish that were ganging up on the cephalopod from all sides. That moment of respite allowed the paper nautilus to reach the safety of the surface by propelling itself with a big spurt of water from its siphon. It left in its tracks clouds of ink, intangible and formless, to distract its predators.

We had a great deal of difficulty following the delicate mollusk toward freedom. Nevertheless, cameraman Michel Deloire managed to film the graceful movements of this living rocket, as well as the animal's incredible changes in color. Like a living kaleidoscope, the colored pigments in its transparent body rotated, resembling iridescent sequins on a shimmering costume. For a long, long time we followed this magical display of light as the nautilus fled the inhospitable world of the coast toward the open sea where, alone and errant, it would live and drift secretly.

GOING SOUTH? COME SHELL CAROLINA!

Steven M. Rosenthal

For the snowbirds among our readers, and for those conventioneers who will be motoring their way southward, here is a short list of some favorite North Carolina shelling spots. All offer temporary relief to the anxious sheller who can not sit still during the long trip to Florida (or Charleston) without first sampling a succulent taste of things to come.

Harkers Island. The shallows along the bay side of the island on the east side of the bridge joining the island to the mainland support a nice assemblage of species, including many typically Floridian shells, such as banded tulips, Busycon whelks (lightning, knobbed, and channeled), Atlantic cockles, pink cockles, and disc dosinias, to name a few. On our first two trips here we logged over 50 species!

New River Inlet. A nice, sandy beach marks the north tip of Topsail Island, and a prime shelling beach it is. Every trip seems to result in something different, and the time of year seems to strongly influence what you find. Sculptured tops, chestnut turbans, pitted murex, oat marginellas, southern moon snails (Natica pusilla), Semele bellastriata, Corbula contracta, and single valves of the Lion's Paw scallop are just a few of the finds you might expect. Springtime is best, as huge numbers of worm shells, keyhole limpets, spiny slipper shells and others appear in the drift, along with ark shells (3 species), winged oysters, and my favorite from this site, Erato maugeriae, a small, pretty shell related to the cowries. Unfortunately, access to this beach is becoming increasingly difficult due to the steady encroachment of seaside condominiums, a common nuisance for the North Carolina sheller (unless you own one).

Holden Beach. A consistently rewarding beach on the Atlantic, never failing to delight the dedicated beachcomber. Such typical species as the Atlantic and concave augers, common baby's ear, and lettered olive are common. A special treat is the echinoid fossils that seem to be omnipresent. These extinct relatives of sand dollars resemble to-day's "sea biscuits." These fossils often contain rock-boring bivalves from the genera Rocellaria, Rupellaria, Lithophaga, and Diplodonta, and provide hours of entertainment for the chisel-and-hammer-wielding collector on rainy days and cold winter nights. Wentletraps and fossilized shark's teeth are also frequent finds.

Scallop Piles. Yes! These meccas draw shellers from all over, but, like nomads, the piles seem to pick up and move from place to place. Recently, Millis' Seafood in Sneads Ferry (a very small town by New River Inlet) had featured calico scallop piles trucked up from Port Canaveral, with many of the other attendant species. Most recently, however, local bay scallops and oysters have replaced the calicos in the piles. With them one finds hooked mussels, large Thais haemastoma, Nassarius vibex, banded tulips and pink cockles. The state's "official" scallop piles in South River, at the end of the road through Merriman, have recently featured Placopecten magellanicus, with lots of hitch-hiking cup-and-saucer shells (Crucibulum), Arctica islandica, Buccinum undatum, and other northern species. (I'm not sure just where these were brought in from — the site is accessible via Bogue Inlet as well as Pamlico Sound.) The famous Williston, North Carolina scallop piles of the 1960's and 1970's are now completely gone, but some equally productive molluscan refuse may turn up any time, any place, so should you make it down here, keep your eyes, ears (and nostrils) open!!

Reprinted from Bulletin of the
Long Island Shell Club, Inc.,
IRRADIANS 14(6):8, February 1988

DR. VICTOR LYON LOOSANOFF

Dr. Victor L. Loosanoff died at his home in Greenbrae, California. on June 15, 1987, at the age of 87. He was recognized internationally for his research in the field of shellfish physiology and ecology with emphasis on the larval culture of oysters.

Following positions as a marine biologist with the states of Washington and Virginia, Dr. Loosanoff was appointed in 1931 as Aquatic Biologist with the U.S. Bureau of Fisheries and stationed at Milford, Connecticut to undertake studies of the commercial oyster fishery in Long Island Sound. In that capacity, he founded the Milford Laboratory and served as its Director for 31 years. It was during this period that Dr. Loosanoff and colleagues under his direction carried out the research that resulted in the development of shellfish aquaculture methods now practiced commercially in the U.S. and abroad.

In 1962 he accepted a position as Senior Scientist with the Bureau of Commercial Fisheries stationed in Tiburon, California. Retiring in 1965, he remained active serving as a consultant as well as conducting research under a National Science Foundation grant.

Among other honors, he received the Department of Interior's highest, the Distinguished Service Award, in 1965 for "exceptional contributions to the scientific programs of the Bureau of Commercial Fisheries".

From the obituary by Dr. James E. Hanks in
Journal of Shellfish Research 6(2) Dec.1987

WILLIAM D. BLEDSOE

We were sorry to hear of the death on December 5th of William D. Bledsoe of Los Angeles. Bill was a former member of the New York Shell Club, and a former president of the Conchologists of America. He took pleasure in visiting meetings and shell shows, and arranged some exceptional exhibits.

His beautiful shell collection has gone to the Smithsonian Institution.

LOIS C. REHDER

We were saddened to learn of the death on February 15th of Lois Rehder at age 76, after suffering a lingering and debilitating illness. Her friendliness will be missed, and our very deepest sympathy is extended to her husband, Dr. Harald A. Rehder.

Her interest in molluscs is evidenced by her New Marine Mollusks from Puerto Rico (Turridae), Smithsonian Misc. Coll. 1947.

HIGHLIGHTS OF THE DECEMBER MEETING

Under old business, Nancy McTiernan reported that she had received a price quote from one bus company on a trip to the Delaware Museum. The cost would be about $500. It was suggested that we move the date to May. There was agreement that anyone desiring to join in this excursion be required to pay in advance. Milton Werner said that he would speak to a neighbor who has a large van.

Milton also reported having found, among Club material on a shelf at home, several pages of notes on early meetings, listing members, describing meeting programs, etc. This will be kept in the Club library. More nostalgia was displayed on the front table. Historian Nick Katsaras had laid out 43 photographs, most in portrait style, of members and former members. All had been taken many years before.

The three visitors were acknowledged, and in answer to a question said that they had learned about the Club and the meeting from a notice in the New York Almanac.

The speaker was Naomi Stern, who organizes scuba diving trips. In this, her second appearance before the Club, she described a 1986 diving trip to the South China Sea. Although the announcement of her presentation mentioned the Red Sea, her slides from that area were comparatively few.

Naomi noted that she had started collecting on Guam in 1952. The shells that littered the beach there attracted her interest, and eventually led her into scuba diving. She added that she no longer collects live specimens.

The China trip was unusual for her in that it was organized by a Chinese woman. The diving crew of their chartered boat were working divers, who had to be reoriented a bit for sport diving. Naomi's slides covered people and activities on the boat, and also scenes on Hainan Island and in Hong Kong, including local people, shops, markets, boats and farming.

The Red Sea trip, in October 1987, was covered with slides made underwater, of fish, soft coral, crinoids, anemones and nudibranchs. On display were shells collected on both trips.

The door prizes were a Murex cervicornis won by Betty Renman, a Cypraea pantherina won by Al Scarpetti and a Costellaria sanguisuga won by Dr. Walter Jacobs.

Ed asked that members prepare brief talks on favorite shells, collecting experiences, etc., for the February meeting. He added the reminder that volunteers are needed for the April meeting.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE JANUARY MEETING

In a follow-up discussion of the possibility of a trip to the Delaware Natural History Museum it was reported that the privately owned van that was seen as a possible means of transportation is now permanently living in Montana. The possibility of using public transportation was suggested.

Concerning the April auction meeting, Milton Werner said that he and Nancy McTiernan would do the necessary shopping and set up chairs on the preceding day. Theta Lourbacos said that the March issue of the NOTES would carry a request that those who intend to donate food and auction material notify us in advance. It was noted that Walter Sage, Al Scarpetti, Irv Hoppenwasser and Nick Katsaras had met before today's meeting to sort and select shells for the auction. A list will be made up. It was further noted that the February meeting would be the best time for donors of cakes and auction material to state their intentions.

Eli Horowitz reported that a mineral show at the 14th Street Armory in March would include fossil shells. Ed mentioned a notice from the American Littoral Society that a workshop on wetlands was scheduled for January 26. Ed also noted that the Hawaiian Malacological Society will hold a show and auction on November 10-13, 1988, to benefit a scholarship fund. Donations are requested.

Long-time member Henry Gordon, who was present for the first time in many years, was asked to comment on a copy of Lovell Reeves' "Iconica Concologia - Conus" that he had with him. Henry recalled that he had bought the book from Richard Johnson, of Boston, many years before, paying $55 for it. He now wants to sell it, and is trying to determine a fair value. Henry also displayed a specimen of Conus deburghiae (now marmoreus) that he had bought at a Nick Katsaras auction. He noted that he once intended to collect every species of Conus known, but had soon given up.

The door prizes were a small Scaphella junonia, won by Al Scarpetti, and a Strombus costatus, won by Nick Katsaras. Al returned the Scaphella, which was then won by Milton Werner.

The speaker was member Dr. John Bockelmann, who described a trip to the Cayman Islands in December 1986. His chief purpose was to experience a descent in a deep-diving submersible, but he also did some snorkeling. Most of his slide photos were those he made through the viewing port of the submersible. The two-passenger vehicle is one of two at the location, and is operated by Research Submersibles, Ltd. The ride, costing $200 for about an hour, takes one to 800 ft., down a steep wall. The photos showed some of the fish and the luxuriant vegetation of the area, and also a wrecked ship. John noted that the thermocline, at about 400 ft., is clearly visible. He distributed copies of a magazine article about the company, the vessels and the experiences of the descent.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE FEBRUARY MEETING

Under old business, Ed asked for volunteers to meet before the March meeting to sort shells for the auction and sale table. The group will gather at the information desk on the first floor at 11 a.m. A list of auction material will be mailed out in late March, along with travel directions,and a form on which donors can report what they will contribute to the auction and the snack table will be included in the March issue of the NOTES.

Ed noted that there does not seem to be strong interest in the trip to the Delaware Museum, adding that train fare would be $46-plus. Eli Horowitz suggested a local field trip, perhaps to Alley Pond Park.

The program consisted of brief talks by members on favorite, or especially interesting, shells from their collections. Al Scarpetti displayed a number of Conus, the family in which he specializes, and commented on several. One of these was a californicus that he had collected at Coronado Beach, California, in three feet of water. The rarest species on the table, he said, was cedo nulli.

Eli Horowitz had brought a nice specimen of Conus gloria maris that he had bought at the South Street Seaport. He recalled several stories from the interesting history of the species, and added that at a later meeting he would talk on the distribution of molluscs.

A 10X magnifying glass accompanied the four Strobilops labyrinthica that Milton Werner displayed. These so-called beehive snails were collected in Connecticut, and he reported having found this tiny terrestrial in New York, Pennsylvania and Wisconsin.

Theta Lourbacos displayed a number of Monetaria moneta and Cypraea annulis in connection with the historical trade in money cowries from the Maldive Islands. There is a long history of cultivation of these cowries in the Maldives and they were shipped out by the shipload in the early days of international commerce. Their distribution has helped to reconstruct the history of trade routes and connections. Some that found their way to Finland, for example, are known to have reached there in the 1200's, and some in Norway and Sweden date to the 6th Century.

Alan Aigen had brought a Conus mediterraneus that he collected at Caesaria, Israel, where he said it is common on rocks, and a Conus arenatus from the Red Sea. He also displayed a number of land snails from Israel that he had collected in such diverse habitats as desert, limestone hills, agricultural areas and forest.

Nick Katsaras displayed and commented on Voluta dufresni, Conus ximenes, a fossil Cypraea problematica, Pomacea paludosa, Acteon virgatus, Voluta bullata, Fissurella picta from the Falkland Islands, and Voluta vespertilio.

Rae Varga had chosen from her collection several shells that she particularly prizes for their beauty, and which she felt would be appealing to anyone seeing them.

Ed Cowles showedslides, whose subjects were Eulima on sea cucumbers, fossil exhibits and shells in their cases in the Smithsonian, and some view of Tobago and shells from there.

Milton Werner, Recording Sec'y

FILM SYMPOSIUM

March 16, 1988, Wednesday evening, 7:30-9:30 p.m., American Museum of Natural History; American Littoral Society annual program "River Fish and Ocean Monsters"; members $6, non-members $7. For information, call (201) 291-0055.

ANNUAL SOCIAL AND AUCTION

Sunday, April 10, 1988

BROADWAY DANCE STUDIO, 31-08 Broadway, Astoria, Queens, N.Y.

Doors open at 1 p.m. for setting up and review of offerings. Auction will begin at 2 p.m., Sol Weiss auctioneer.

Donation at door, $2 per person for members and guests.

In addition to the auction, there will be a 'bargain table', door prizes, raffle and refreshment table.

DIRECTIONS: --
The studio is on the second floor of the building, S.W. corner of Broadway and 31st Street. From Manhattan: B.M.T. ASTORIA line to BROADWAY station, or I.R.T. FLUSHING line to QUEENSBORO PLAZA and transfer to the B.M.T. ASTORIA line, thence to BROADWAY station. Travelling from Jamaica: I.N.D. to ROOSEVELT AVE., transfer to I.R.T. FLUSHING line to QUEENSBORO PLAZA, transfer to B.M.T. ASTORIA train.

BY CAR: QUEENSBORO BRIDGE to NORTHERN BOULEVARD to 31st Street, left on 31st Street (under the elevated) to BROADWAY. Also, TRIBORO BRIDGE to the first exit in Queens, turn right under the elevated along 31st Street to BROADWAY. From LONG ISLAND: GRAND CENTRAL PARKWAY to the last exit before the Triboro Bridge, go a short distance along ASTORIA BOULEVARD to 31st Street, turn left under the elevated to BROADWAY, about six blocks.

PLEASE NOTE THE FOLLOWING INFORMATION

About the end of March, more detailed information about our auction and social will be mailed to all members. Included will be a partial list of some of the most interesting shells to be auctioned.

To help us make this one of the best of our auction/socials, New York Area members are requested to fill out and return the following sheet. We need lots of help, but whether you can help or not, we hope to see you on April 10.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

EDWARD F. COWLES
12 Hillcrest Ave.
New Rochelle, N.Y. 10801
914-636-3136

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

DR. WALTER H. JACOBS
585 West End Ave.
New York, N.Y. 10024
212-362-0223

Treasurer

THETA LOURBACOS
66 W. 94 St., #2CC
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, MARY ANNE BASTEK, WALTER SAGE, AL SCARPETTI

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1988-9

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 11, 1988
October 9, 1988
November 13, 1988
December 11, 1988
January 8, 1989
February 12, 1989
March 12, 1989
April 9, 1989
May 7, 1989 **
June 11, 1989

** The May meeting has been changed to the first Sunday in May to avoid conflicting with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your NYSC membership card for admission to the Museum for the meeting.)

JUNE 12, 1988 ELECTION OF OFFICERS FOR 1988-9

Report of Nominating Committee (last page)

Discussion of programs for 1988-9

PROGRAM (to be announced)

CONTENTS

		Page
In Memory of Veronica Parker Johns		2
Beal-Maltbie Shell Museum Closing	Orlando Sentinel	4
Coming Events:		4,5
Shell Shows and Meetings		6,13
Environmental Conservation	News items NY, NJ	6
Review: Field Guide to Molluscan Spawn, by Beatrice Winner	Walter Sage	7
Exchange Desired (a letter)	Sr. Monteiro, Portugal	8
Tomorrow's Medicine	WNET TV	8
A Holiday at Garden Bay	Vilma Wicks	9
Highlights of the March Meeting	Milton Werner	10
Highlights of the April Meeting	Milton Werner	10
In Appreciation	NYSC Officers	11
Highlights of the May Meeting	Werner & McTiernan	12
Official Sea Shell for New York State	New York Post	12
Additions to list of Coming Events	Donald Dan	13
Land Shelling on the Island of Jamaica	Richard L. Goldberg	14
An Open Letter to All Members	(Name withheld)	17
Shell Museum Planned for Sanibel		17
Catalogs received		17

Insert: Report of ADHOC Nominating Committee

VERONICA PARKER JOHNS

With the passing of our friend Veronica on April 14 and the closing of her Seashells Unlimited at 590 Third Avenue, Manhattan, the New York shelling scene has lost a unique and irreplaceable person/ institution. A born New Yorker, she celebrated her 80th birthday last December 28. Veronica owned and operated her shop for nearly 25 years and had been associated for the previous ten years with her cousin Crosbie McArthur at his McArthur's Shell Shop.

Most of us knew Veronica primarily through shells, but you will see below that this was just one facet of the life of this multi-talented lady. Richard Goldberg shared with us his personal reminiscences in the April Irradians, and in 1979 Mary Ruth Foglino profiled Veronica, with photograph, in the Long Island Shell Club News.

TODD EBERLE

SHELLS

Veronica Parker Johns 1988 photo.

There have also been articles in various local newspapers. [The above photograph of Veronica in her shop was taken early in 1988 by Todd Eberle and accompanied a very pleasant little article by Yona Zeldis McDonough in The Village Voice. (We thank Al Scarpetti for sending it to us.) -Ed.]

Veronica was a past president and loyal member of the New York Shell Club which she joined in 1957, a charter member of both the Long Island Shell Club and the Conchologists of America, and a member of the American Malacological Union.

Prior to her introduction to shells, Veronica had been a noted mystery writer, with five novels (I'm reading them now and enjoying her witty and animated writing style) and numerous short stories to her credit, some adapted to television. Though she had ceased writing mysteries when shells "took over" her life, in 1958 she served as Regional Vice-President of the Mystery Writers of America and continued to be a vital member of that association during her membership which spanned a period of over forty years. She attended every opera, concert, theatre, and artistic production that came to Manhattan; was active in local political life; and was loved by friends and acquaintances alike.

Veronica chose that her body be available for medical research, and made provision for her shell books and the rest of her library. She had been very fond of Bill Old, my predecessor at AMNH, and those closest to her requested that contributions in her memory be made to the William E. Old Fund, Department of Invertebrates, American Museum of Natural History, to the attention of Walter Sage. We have already purchased in her memory a gem specimen of the spectacular Australian volute, Cottonia nodiplicata Cox, 1910. I am very proud to have known this great lady of shelling, and will fondly remember Veronica when I think of this special shell — I think she and Bill Old would be pleased.

Walter E. Sage
American Museum of Natural History

A memorial meeting was held April 25th at Veronica's favorite restaurant where she, with frequently a friend or friends, would retreat for more conversation after she'd closed the shop for the day. But this time, in these familiar surroundings, there were farewells along with the reminiscences:

> Dear Veronica:
>
> While we mere mortals are gathered here to do you homage and to express our love for you, we are comforted to know, or perhaps even a little envious, that you have crossed over to those everlasting and bountiful Elysian shores and to those coral reefs of Nirvana. For several generations of beginning shell collectors you opened the doors to a world of beauty and wonderment. For old-time collectors you frequently offered a first chance to add a new-found conchological treasure. And for thousands, through your cheerful and humorous writings, you lightened our earthly expeditions for shells. While "Seashells Unlimited" at 590 Third Avenue is now but a memory, you may be sure that our love and memory of you will be Forever Unlimited.

TUCKER and CECELIA ABBOTT

In her book, SHE SELLS SEASHELLS, Veronica tells the story of her association with shells since her first encounter, relates tales of shells and shellers, buyers and sellers, trials and rewards. Her closing lines on selling just seashells: "However, although not making a living she can make a wonderful life, enjoying the company of those enthusiasts who have already discovered shells and the unending fascination of her merchandise. ... And she can blow a blast on a Triton's Trumpet that may eventually tumble the walls that keep seashells from people."

AVE

Dorothy Raeihle

BEAL-MALTBIE SHELL MUSEUM CLOSING

(An article datelined Winter Park and appearing in the Orlando Sentinel was reprinted in the Central Florida Shell News of March, 1988 and is the source of the following information:)

One of the largest shell collections in the country, on display for more than forty years at Rollins College, is being moved to the University of Florida at Gainesville.

Rollins officials say they regret having to close the Beal-Maltbie Shell Museum, but they believe the nearly two million shells will be better off in the Florida State Museum at UF. Barry Allen, the unofficial curator of the collection, said the small liberal arts college doesn't have the staff or facilities to adequately maintain or exhibit the delicate treasures.

The Rollins collection, which represents more than 10,000 species from around the world, will be incorporated into a collection at the Gainesville museum.

Most of the shells were donated to Rollins in 1942 by pharmaceutical scientist James Hartley Beal of Cocoa. Beal had collected shells as a hobby while traveling around the world. His friend, Birdsey L. Maltbie, provided more than $4,000 to construct a building for the collection.

Since then, the small brick building has drawn thousands of visitors each year. But because Rollins doesn't have a malacologist on campus, it has been unable to keep up with the rapid changes in the shell collection field, Allen said. Many of the shells have lost their brilliance. Some are chipped, cracked and crumbling. The labels identifying their origin, group and species have yellowed, and many of the names are obsolete.

But Kurt Auffenberg, collection manager for the malacology wing of Florida State Museum, said that every precaution will be taken to protect the shells from further damage. Although more than fifty years old, the malacology collection at the Florida State Museum is housed in a 17-year-old building that has equipment to control heating and cooling as well as lighting and moisture.

Sorting the Rollins collection should take about one and one-half years, but Auffenberg said he wouldn't be surprised if it took longer.

COMING EVENTS

June	19-24	AMU Annual Meeting at Charleston, South Carolina Contact: Richard E. Petit P. O. Box 30 North Myrtle Beach, SC 29582 (803) 249-1651
July	17-21	WSM Annual Meeting, Sonoma State University, Rohnert Park, CA. 94928. Contact: Dr. Matthew J. James, Department of Geology. (707) 664-2301/2334.
July	29-31	Jacksonville Shell Show Contact: John Fatu 14149 Tomas Point Lane Jacksonville, FL 32225 (904) 221-1310

November ? Latin-American Malacological Congress, Cali, Colombia.
Contact: Dr. Jaime R. Cantera K.,
Departamento de Biologia
A.A. No. 25360
Cali, Colombia, Sur America

Professor Emeritus Melbourne R. Carriker (Univ. of Delaware) also has details.

November 11-13 Hawaiian Malacological Society Shell Show, Neal Blaisdell Center in Central Honolulu. (See below)
Contact: HMS Shell Show Committee
P.O. Box 22130
Honolulu, HI 96822
[or Stu Lillico: (808) 734-3703]

January 20-22 Greater Miami Shell Club Show, 1989.
Contact: c/o The Mollusk
1955 Ixora Road
North Miami, Florida 33181

HAWAIIAN SHELL SHOW

The Hawaiian Malacological Society's first Shell Show in nearly a decade, to be combined this year with a Shell Auction and Audio-Visual Program, has been scheduled for the weekend of November 11-13 at the Neal Blaisdell Center in Central Honolulu. Collectors, dealers, and malacologists worldwide have been invited to participate.

The Auction will feature both rare and medium-expensive shells. Proceeds are to support the HMS Scholarship Fund, which annually makes grants ranging from $350 to $1500 to advanced students of malacology. In addition to the auction, there will be table sales of lower-priced specimens.

Half a dozen prestigious trophies will be offered for the Shell Show displays. Among them will be the Smithsonian Award, the Conchologists of America Trophy, and a new perpetual Tom Richert Memorial Award for the Shell of the Show. Others are still being negotiated.

The Audio-Visual Program includes slide shows of underwater collecting, talks on maintaining a saltwater aquarium, lectures on recent developments in malacology, and discussions of out-of-the-way shelling spots.

HMS president Dan McNally is in charge of the Auction, assisted by Bill and Trudi Ernst. Vice-president Jim Rohrbach will be masterminding the Show proper, while past president Olive Schoenberg handles the Audio-Visual Program. Details, as they are worked out, are available from the HMS Shell Show Committee, P.O. Box 22130, Honolulu, HI 96822, or by phone from Stu Lillico, (808) 734-3703.

There will be a follow-up report in midsummer, after arrangements on trophies have been completed.

Stuart Lillico
Committee Chairman
1988 HMS Shell Show

June 12, 1988:	There will be a Nature Program on Philippine undersea life that will have a small segment on Octopus. PBS TV, 8:00 p.m.
August 13-14 1988	The Indianapolis Shell Club will hold their Shell Show at the Glendale Shopping Mall. The Quality Court's Castleton Suites will be the headquarters for the entire weekend for associated affairs such as the auction, Judges' dinner, etc.

ENVIRONMENTAL CONSERVATION

NEW YORK BEACH WATCHERS PROGRAM - Do you regularly visit any of New York's beaches? If so, please consider becoming a "beachwatcher" by looking for and reporting any unusual garbage, hospital waste, etc. that you observe on your beach to the N.Y. State beach watcher hotline (718) 482-4955. Or you can write to the N.Y. State Department of Environmental Conservation, Hunters Point Plaza, N.Y. 11101. Program coordinator Roberta Weisbrod requests that you photo-document trash as well as record and/or collect samples of pertinent items found.

Speaking of trash, the New York Chapter helped with a beach clean up on Long Island during National Beach Clean Up Day, October 10, 1987, collecting mounds of trash, including lots of plastics.

BUFFER THE BAY - American Littoral Society is working with the NYC Audubon Society, Trust for Public Land, and Friends of Rockaway, Inc. to help acquire natural area buffers around Jamaica Bay, N.Y. So far, it looks as if the Dubos Point parcel in Rockaway will be made park land this spring. New York Chapter members Mickey Cohen and Don Riepe* will be working on a management plan for Mott's Point properties this year.

New York Newsletter of the American Littoral Society
New York:*(718) 634-6467. Sandy Hook: (201) 291-0055

WHAT IS IRRATIONAL? The following paragraphs appeared in the National Report column of the NY Daily News of February 20/21, 1988:

> WASHINGTON — After dead dolphins, hypodermic needles and other floating trash washed ashore last summer, New Jersey called for a ban on ocean dumping, but Mayor Koch (of New York City --Ed.) yesterday blasted the call as "irrational" and "politically motivated."
>
> Koch told the Senate Environment and Public Works Committee that banning such dumping will not solve the Jersey shore pollution.

COUNTY RESCUES 'GEM' - Suffolk County's acquisition of 48.13 acres on the tip of the North Fork - Orient Point - is a signal that people and government can work together to protect the environment and the quality of life of the county, officials declared.

The parcel, located immediately northeast of the Cross Island Ferry Terminal and stretching eastward to the tip of the Fork, was originally identified for public acquisition 17 years ago but, said County Executive Patrick Halpin, "Everybody forgot about it until eight years ago when a number of groups, including the Orient Point Association and the North Fork Environmental Council (NFEC), began working hard to convince the county to acquire the property before it was developed. ... We are going to leave it in its natural state. Although, some time in the future, we might set up a small visitor center and a walkway may be constructed."

Our congratulations to all those local groups who worked so hard to keep the tip of the Fork for all of us. For some time they have also been working to save Robins Island - still in almost pristine condition - from damage by "progress." Rally 'round, they can use help.

'EMERALD NECKLACE' FOR NEW YORK - The Regional Plan Association has an impressive ecological record dating to a time well before ecology became fashionable. An open-space plan it promoted in the '20^{s} led to the preservation of a good portion of the Palisades. In 1960 it called for a doubling of regional parkland — and that was realized in the establishment of such sites as the Gateway National Recreation Area. Now the Association has issued a call for a tri-state effort to protect open spaces. And to purchase more land for public use.

The RPA's grand dream is for a network of interconnecting "greenways" of woodlands and wetlands and wilderness and urban-suburban parks and nature trails. It would be an "emerald necklace" 600 miles in length, running through New York, New Jersey and Connecticut. Running through vast tracts of forest and meadows, along windswept beaches and tree-lined boulevards (the latter to act as corridors carrying hikers and bikers to the rest). The concept is continuity,- a continuous path through nature. A preservation of nature.

Some of the greenways already are in place (e.g., the Staten Island Greenbelt). Others are on the drawing board (the Brooklyn/Queens Greenway from Coney Island to Little Neck Bay, the Hudson River Greenway from Westchester-Rockland to the Adirondack foothills). The RPA proposal would link all such preserves — and add other land.

And how is all this going to be done? Only through cooperation among the three states and the active involvement of their respective governors, legislatures and local civic groups. And to act to make the vision a reality. Before the reality is, instead, that "they paved paradise and put up a parking lot."

From an editorial in the NY Daily News 2/29/88
Michael Pakenham, Editorial Page Editor

REVIEW:

A FIELD GUIDE TO MOLLUSCAN SPAWN, Volume I

by Beatrice E. Winner. 1987. 139 + iv pp., illustrated. Privately published, E. B. M., P.O. Box 14923, North Palm Beach, Florida 33408-0923. Spiral plastic bound. Price: $9.95 plus $1.50 mailing.

The author has, for several years, shared her knowledge and observations of molluscan egg masses by slide presentations with members of national and local shelling societies. With this small book she is reaching out to the wider audience of those interested in mollusks by picturing the egg masses of 46 species of gastropods (38 prosobranchs, 5 opisthobranchs, and 3 pulmonates), almost all from the western Atlantic region. 165 photographs, most by the author, illustrate the shells, animals, egg capsules, larvae, and some habitats of the included species. The accompanying text details the author's discoveries about these species and she carefully provides scientific name and geographic range of each taxon. Introductory sections, glossary, references, and indices complete this volume.

This book will introduce collectors to the variation exhibited by mollusks in the formation of their egg capsules, and will serve as an easy starting reference for those who want to learn more. Unfortunately, the treatment is not uniform, and a novice conchologist may find it difficult to determine, both in this volume and from it in the field, which mollusk laid which egg mass. Line drawings would have been helpful, as the reproduction of the photos is not always of optimum quality, and there are numerous typographical and spelling errors. Still in all, this presentation offers a beginning to the sheller or student wishing to learn more about mollusks and their reproductive strategies, and we commend the writer for initiating this project.

Walter E. Sage

EXCHANGE DESIRED

February 18, 1988

Dear friends -

First of all, I'd like to present myself.

I'm a collector of seashells, particularly from the Atlantic coast of Portugal and Mediterranean Sea. I also have some shells from North African Coast - Mauritania - (mainly Cymbium spp.) and from Mozambique Coast.

I've been exchanging shells with collectors from Brazil, Argentina and South Africa. Now I'd like to extend my collection to other parts of the world.

In this way, I thought that your association could help me, in publishing my name and address. May be in this way I could get some contacts with new collectors friends.

I'll be interested in all Gasteropoda and Bivalvia Seashells of the world.

I also would like to know if there is any chance to receive any publication of your association.

Thanks for all the trouble I may give you.

Yours Sincerely

Dàmaso Duarte Monteiro
Rua Cidade de Luanda, 209-3ºESQ
Y100 Porto
Portugal

(An issue of NYSC NOTES has been sent to Sr. Duarte Monteiro.)

TOMORROW'S MEDICINE

Watch for a repeat of the INNOVATION chapter which was aired in New York April 26 - PBS Television, WNET Channel 13 - on the work being done in Marine Pharmacology on the toxic chemicals by marine creatures to repel predators. Previously unknown toxins show great promise for use in modern medicine.

A HOLIDAY AT GARDEN BAY

Vilma Wicks

Garden Bay is on the southeastern coast of New South Wales, Australia. It is an interesting and very beautiful coastline with its broken line of many bays, inlets and coves. The area is about half way between Sydney, the capital of New South Wales, and the Victorian border; it is south of Batemans Bay and adjoins Malua Bay. All are part of a string of bays with easy access for the holiday maker or day visitor. There are also many permanent homes along this coast, and the area is enhanced by trees — Wattle (Mimosa), Gum, Red Bottle Brush, Banksia, and Cabbage Tree Fern.

The rented holiday house where we stayed for one lovely week prior to Christmas 1987 is above the headland of Garden Bay, overlooking the bay and the Pacific Ocean. On our arrival there, we (my sons Donald and Graeme, my daughter-in-law Pat, and myself) were welcomed by quite a number of dolphins displaying their enjoyment in the ocean.

It was difficult for me to get down to the beach because of the downward slope. However, with assistance, I managed to get my feet onto the pebbly higher part, then made it down to the nice ocean sand. There is a good rock platform where many shells make their home, and I must remark here on the impression I got when first seeing this rock. It was smooth, and different from anything I had seen before. It looked like large fossilized tree trunks lying down, even having notches. Because of the forest areas all along the coast for many miles, I thought it could be so. However, from information from a booklet which I bought, it appears that it was created over a period of millions of years by the compressions of many layers of sediment and debris, great upheavals to lift it above the sea, then the ice age played its part. So there it is today. From its appearance I could consider that a lot of tree material contributed to this rock formation. On either side of the bay there are moderate-sized cliffs with rock platforms where the interest in fishing is involved.

It was interesting to note the variety of birds we saw around this small area: Galah, Swallow, Cormorant, Brown Heron, Sea Gulls, Sea Eagle, Pelicans, Gannet, Magpie, Starlings, Red Billed Oyster Catcher, and a Gray Heron that I was surprised to see in the sea water, as I thought it to be solely a fresh water eater — it eats frogs.

Donald and Graeme had some good swims. The water was deep enough close to the shore for fish, and they saw Morwong, Luderick, and the Stingray — which is harmless unless touched.

Of the shells collected, there were seven species live, four beach-worn. Those found alive were:

Austrocochlea concamerata (Wood, 1828)
Austrocochlea constricta (Lam., 1822)
Sypharochiton pelliserpentis (Q & G, 1835)
Bellastrea sirius Gould
Ninella torquata Gmelin, 1791 (Sydney Turban)
Notohaliotis ruber Leach, 1814
Charonia rubicunda (Perry, 1811)

Fewer species were found on the beach, but still rock-living shells are the more numerous in species. The beachworn shells were:

Dosinia phacosma coerulea Reeve, 1850
Scutus antepodes Montfort, 1810
San haliots varia Linné
Melanerita melanotragus (Smith, 1884), now known as:
    Melanerita atramentosa Reeve

REFERENCE

Shells of Australian Sea Shores
by D. F. McMichael
Jacaranda Press, Brisbane, Australia

(Vilma Wicks is a long-time corresponding member of the New York Shell Club who lives in Carnegie, Victoria, Australia.)

HIGHLIGHTS OF THE MARCH MEETING

Treasurer Theta Lourbacos reported receiving a note from Vilma Wicks, sending her regards and a donation of $22. Other mail was a note from Marie Sussman which enclosed a letter from a collector in Portugal who would like to make a trading contact. (See page 8)

Walter Sage noted that thanks are due to Nick Katsaras, Al Scarpetti, Richard Goldberg, Irv Hoppenwasser and Eli Horowitz for their work in sorting shells for the auction. He noted that members might want to make arrangements among themselves for sharing rides to the Long Island Shell Club Show on April 30 and May 1.

The door prizes were a Marginella desjardini, won by Betty Renman, and a Lambis lambis, won by John Bockelman.

The speaker was Richard Goldberg, whose subject was Land Shelling in Jamaica. His two recent trips there totaled eight weeks. He informed us that the island has about 400 endemic species of terrestrials and 100 more that have been introduced. About 300 were named by C. B. Adams in the mid-1800s. He noted that there is much limestone, and mountains to 2,200 feet. Many of the species have extremely limited ranges, and among those with wide ranges, some are highly variable. There are three species of snakes, none poisonous, and no endemic mammals. However, the mongoose has been introduced, and it eats many snails.

It is difficult to travel widely on the island because the roads are primitive. Nevertheless, he recorded 150 collecting stations and came back with about 375 species. His companion, Gary Rosenberg, discovered a new species. Richard showed slide photos of a number of the shells he collected, and some of living specimens. Not surprisingly, he said he will go back to Jamaica.

Those present signed a get-well card for Veronica Johns, who is in Lenox Hill Hospital seriously ill with a heart condition and emphysema.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE APRIL MEETING

As in past years, the April meeting of the New York Shell Club was their annual auction and social held at Dorothy Jensen's Broadway Dance Studio in Astoria, Queens. Attendance numbered 54.

Auctioneer Mel Springer, assisted by Sol Weiss, disposed of an excellent selection of shells, and art works to the eager bidders. As in last year's auction, a notable segment of the material offered consisted of volutes that had been donated by Dr. Leonell Strong.

The art works, four guache and ink drawings by Al Scarpetti, inspired bids of $35, $20, $20, and $15. The shells that drew the strongest bidding were Conus auratus, knocked down at $72, Livonia roadnightae $65, Charonia tritonis $50, a starter collection of 41 Conus $47, 20 land snails $46, Volutoconus hargreavesi $45, Cypraea mus $45 and $25, Xenophora pallidula with attached sponge $41, Harpulina arausiaca $40, Strombus kleckhamae $34, Murex pecten $32, Lyria taiwanica $30 and $22, 10 Liguus $30, 20 pectens $30, Astraea heliotropium $25, 2 Cymbiola aulica form cathcartiae, one with model of the animal, $22, and Cymbiolacca wisemani $21.

The sale table, under Al Scarpetti, did a brisk business. During a break, and also throughout the afternoon, a buffet of wine, punch, coffee, tea, cheese, cold cuts, dips, crackers, and cake was highly popular.

Milton Werner, Recording Sec'y

IN APPRECIATION

Our 1988 Social-Auction on April 10th was a big success — a most enjoyable afternoon socially, many acquired beautiful shells, and the Club's treasury benefited significantly.

Many people helped in various ways, but our special thanks go to Dorothy Jensen for the use of her dance studio. Much of the planning and preliminary set-up work was done by Nancy McTiernan and John Robinson with Dorothy Jensen, and Sol Weiss, with Mel Springer, was in charge of the auction.

Contributions of shells, books, pictures, etc. were received and food was prepared and contributed for the refreshment table. Other helpers sorted and bagged shells for the auction and bargain tables, prepared a list of shells and a flyer which were mailed out to members and friends, and on April 10th were at the reception desk, the auction table, the refreshment table and the bargain table to keep everything moving smoothly.

The following are those whom we know contributed in one or several ways, and we give them our sincere thanks. There very probably may be others who contributed and in the press of activities their names were not noted; if so, please accept our thanks, with apologies, and let us hear from you.

Dorothy Jensen
Nancy McTiernan
John Robinson
Sol Weiss
Mel Springer
Sylvia Springer
Edward Cowles
Al Scarpetti
John Cole
Nick Katsaras
Henry Gordon
Elizabeth Renman
Theta Lourbacos
Vincent Cusumano
Leonell Strong
Irv Hoppenwasser
Mike Werner
Walter Sage
Hans Reimann
Arline Reimann
Anne Whiteman
Ed Dunlap
Eli Horowitz
Rae Varga
Richard Goldberg
Richard Many
Mary Anne Bastek
Rachel Lindsay
Carol Lindsay
William Lindsay

[The order in which names are listed is random, and does not imply greater or lesser contribution(s).]

Our sincere thanks also to the following dealers who donated items for the auction:

Seashells Unlimited, Veronica Parker Johns
Worldwide Specimen Shells, Richard Goldberg
Thomas Honker
She Sells Sea Shells, Sanibel, Florida

THE OFFICERS OF THE NEW YORK SHELL CLUB

HIGHLIGHTS OF THE MAY MEETING

This meeting, like all of the Club's May meetings, fell on Mothers' Day, and it was again felt that this had an effect on attendance. Discussion of the problem in past years had never turned up what seemed to be an alternative worth trying, but feelings on the subject were strong enough to reopen the discussion. It centered on the possibility of moving the May meeting date to the third Sunday, but no immediate action was taken.

On display was a specimen of Cottonia nodiplicata from Perth, Australia, which the American Museum of Natural History had purchased using a recent donation to the Bill Old fund. Also on display was a collection of 93 Nerita peloronta from the south side of Anguilla Island in the Caribbean. Sol Weiss collected them, selecting specimens that illustrate the color and pattern range of the species, and donated them to the Museum.

There were photographs on display of Bill Old in Korea in 1950, during his Army service, and of Drs. Henry Pilsbry and Harald Rehder, as well as snapshots taken at the April auction meeting and at Fred Cannon's home, where the June 1987 meeting was held.

The scheduled speaker, whose subject was to have been The Shells of West Mexico, did not appear due to a misunderstanding of dates, so the meeting was a short one.

Milton Werner, Recording Sec'y,
from notes by Nancy McTiernan

OFFICIAL SEA SHELL FOR NEW YORK STATE

In the New York Post of May 18th, a report by Chris McKenna, datelined Albany, was entitled "Shellava big honor for Bay Scallop:"

> The Senate last night put aside some of its more weighty issues and voted unanimously to make the imperiled Long Island Bay Scallop the "official" state sea shell.
>
> If, as expected, the measure clears the state Assembly, the Bay Scallop — Argopecten irradians to those who study such things — will become New York's 12th "official" emblem.
>
> "This species is most representative of New York's waters," said Republican Senator Kenneth LaValle, one of the sponsors, in a memo filed with the bill.
>
> "It is a charismatic shell that best befits New York's influence and status," La Valle added.

We have just received from Donald Dan his list of 1988 summer and fall Shell Shows and Meetings. It includes notices of several events in addition to those listed on earlier pages of these NOTES:

June 18-19
7eme Salon International du Coquillage, Lutry, Switzerland.
Contact: Dr. Ted W. Baer
1602 La Croix
Switzerland (021) 393-771 or 207-371

June 26-30
National Shellfisheries Association, 80th Annual Meeting. New Orleans.
Contact: Mr. Edwin Rhodes
National Marine Fisheries Service
212 Rogers Avenue
Milford, Connecticut 06460 (203) 783-4200

July 23-24
Keppel Bay Shell Show, Yeppoon, Qld., Australia
Contact: Jean Offord
277 McDougall Street
N. Rockhampton 4701
Queensland, Australia (079) 283-509

August 11-13
Jersey Cape Shell Club Shell Sow, Cape May, New Jersey
(A non-competitive exhibition.)
Contact: J. B. Sessoms
P.O. Box 306 (609) 653-8017
Somers Point, New Jersey 08244

August 13-14
Midwest Regional Shell Show, Indianapolis
Contact: Carl Sahlberg
7826 Camberwood Drive
Indianapolis, Indiana 46268 (317) 877-0213 or 1-800-451-1735

Sept. 24-October -9
Oregon Shell Show, Portland, Oregon
Contact: Dr. Byron W. Travis
4324 N.E. 47th Avenue
Portland, Oregon 97218 (503) 284-1365

October ?
Pacific Northwest Shell Show, Seattle, Washington.
(A non-competitive exhibition.) For exact date etc.:
Contact: Elsie Marshall
2237 N.E. 175th Street
Seattle, Washington 98155 (206) 363-3219

Oct. 22-23
Philadelphia Shell Show, Philadelphia, Pennsylvania
(A non-competitive exhibition.)
Contact: Al Schilling
419 Linden Avenue
Glenside, PA 19038 (215) 886-5807 or 1-800-345-1123 Ext.7456

Oct. 21-23
North Carolina Shell Show, Wilmington, NC
Contact: Dean Weber
510 Baytree Road
Wilmington, NC 28403 (919) 799-3125

October 31
British Shell Club Show, London, England
Contact: Geoff Cox
7 King John's Road
North Warnborough, Odiham, Hants, RG25 1EE
England

LAND SHELLING ON THE ISLAND OF JAMAICA

by Richard L. Goldberg

Best known for resort hotels and Reggae music, Jamaica's easy access and good climate make it a major Caribbean tourist spot. My interest in Jamaica dates back to 1971 when I first traveled to the island as a novice shell collector with virtually no knowledge that land shells existed there. My memories of that first trip include befriending a local MoBay (Montego Bay) diver who took me shelling in his homemade dinghy to some of Jamaica's finest reefs.

Years later I was surprised to learn that Jamaica harbors a fascinating land shell fauna larger than that of any other comparable land mass. Thinking of my first trip and what I might have found if I had known, I promised myself a landshell collecting trip there. But I knew nothing about the island, or where to find this diverse and beautiful fauna.

I found a paucity of literature on the 500 species of Jamaican land shells. C. B. Adams published preliminary descriptions of 360 species in the mid 1800's, intending a monograph illustrating and fully describing them later. His colleague, Edward Chitty, described another 30 species, also without illustrations. Adams died at 39 of yellow fever, monograph incomplete. Since then, scattered papers on Jamaican land shells have appeared in scientific journals, a relatively small number, considering the size of the fauna. The data gleaned from these papers, though, gave me a springboard for my first excursion.

Mobility is paramount to amassing a good collection of Jamaican land shells. Many species have limited ranges — only one mountain or valley in a few cases — while others are widespread throughout the island, but tend to vary considerably. Jamaica is only 144 miles long by 49 miles at its widest point, so going from point A to point B may seem easy. The island's "Class A" roads are well-paved two lane routes linking the major towns. But they are mainly coastal roads, and the best collecting is inland, so one must use "Class B" roads, which vary from good to poor depending upon the parish. Yet it is the roads listed as "Class C," "Other," and "Motorable Track or Footpath" that pass through the snail-rich rural inland areas. These are treacherous at best. It may take four days, with stops along the way to sample land snail fauna, to go from Manchioneal on the extreme east coast to Negril on the west. using inland routes. During one trip criss-crossing the island, I clocked over 2,000 miles on my rental car, with just two flat tires!

I strongly suggest getting a set of Jamaican Government Geological Survey Maps, from the Survey Department in Kingston. Going inland with one of the popular gas station road maps can leave one hopelessly lost in a maze of unmarked roads. Survey maps aren't foolproof either. While exploring some of the low-elevation areas of the John Crow Mountains in the east, we took a road clearly shown looping from Hope Bay east to Port Antonio on the north shore. It metamorphosed, after five miles and two hours, from a "Class C" road to a "Motorable Footpath," and then to nonexistent!

On the other hand, the John Crow and the Blue Mountains (highest elevation: 7,400 feet) make the eastern parishes extremely mountainous, but their shale and igneous rock makes them less suitable for snails. Collecting through these mountains, one finds fewer species of snails, though a few endemics occur: Pleurodonte carmelita, and the malleated P. chemnitziana, two of the larger and rarer Jamaican species. The jungle and cloud forests above 4,000 feet are a maze of tangled vegetation, towering canopies, seemingly endless precipitation and muddy, oozy trails — a challenge for even the most seasoned land shell collector. The payoff for attempting a trek, though, is contact with a pristine part of Jamaica, and a true breath of fresh air. It does get quite cold for Jamaica — as low as 56° F. in the late afternoon!

Much of the lower elevation forests of the Blue Mountains (1500-300') have been cut away to plant the famous Jamaican Blue Mountain Coffee, reputed to be the best in the world. The snailing here is quite poor. But the John Crow Mountains to the east have not been affected by the slash-and-burn agriculture that is destroying much of the tropics today, and a scattered surface strata of limestone correlates with an increase of terrestrial species here. But, be warned! The Geological Survey Maps do not even show foot trails through much of the John Crows. And after following a Jamaican youth through some of these forests, I know why these treacherous mountains have been left untouched.

On Jamaican trips in 1985, 1986, and 1987, I collected at over 150 stations. Without a doubt, my most prolific and fascinating collecting was in the primitive and untouched Cockpit Country, a 10 by 20-mile natural wonder. Made up of a karst topography of pitfalls and potholes carved out of limestone, it is virtually isolated from the outside world. Sheer cliffs, thick forests and camouflaged sink holes are just a few of the natural hazards. No wonder the Maroons, descendents of escaped slaves from the 1700's, live along the fringes of the Cockpit Country, cutting themselves off from the outside world and its laws. With district names like "Me No Sen You No Come," and the town of Quickstep in the District of Look Behind, many legends developed about the Cockpit Country. No roads and few charted trails make entering without a local guide unwise. The few trails that do lead through are quite dangerous. Spending the entire day inside the Cockpit Country north of Quickstep, we did not see another human being. Travel books warn that the Maroons are not fond of visitors into their isolated oasis.

There are no dangerous insects or reptiles to contend with in the Cockpit Country, just annoying ones. The mosquito population is offensive, so a strong pump-spray mosquito repellent is mandatory. Sturdy water-proof hiking boots, a back pack with collecting receptacles, drinking water and a first aid kit are also musts. Gloves help avoid a painful sting from a small bristle-leaf plant locally called "courage" — you will need plenty if you rub against it!

The well-conditioned collector could walk the entire width of the Cockpit Country, from Quickstep on the south, along the Pantrepant Trail to Windsor Cave on the north, but he would have to have a vehicle waiting at trail's end. To traverse the Pantrepant Trail takes a full day, without stopping. The trails are a series of steep, up-and-down, muddy tracks, following the Cockpits. The altitude between the bottom and top of a cockpit varies as much as 500 feet. Most of the Cockpit Country ranges between 900 and 2,200 feet above sea level.

The Cockpit Country is home to an infinite variety of wildlife, and and it had been explored by scientists of all disciplines. New species, including land snails, are discovered frequently. It's home to some of Jamaica's most exotic land mollusks, including Tudora (Colobostylus) humphreysiana, an operculate with a banded pattern and flaring, lavender peristome; and Eutrochatella tankervillei (Gray, 1834) [see Am. Conch. v.15, n.4, p.9]. We took 40 species of land shells on one day of my last excursion.

85-90% of Jamaica's terrestrials are endemic, and so are a few genera and subgenera — the beehive-shaped Sagda and the dentate Dentellaria, a subgenus of Pleurodonte. The pulmonate families with the most species include the Sagdidae, the Urocoptidae with their cylindrical-shaped shells, the carnivorous Oleacinidae, and the large, solid Camaenidae. The two large operculate families are the Cyclophoridae and the Annulariidae. One can find species from all of these families at one collecting station in some inland areas. I collected at least four, and as many as 20 species at each of my 150 stations, none of which had more than a 50-yard radius — a relatively high density of species.

The Cyclophoridae and Annulariidae have, for the most part, very limited ranges. In 1942, Bartsch, in his monograph of the cyclophorids, used the operculum as one of the key generic differences. Without examining opercular sculpture and referring to well-localized data, identifying most of the Jamaican Cyclophoridae would be near impossible. Opercula are also extremely helpful in differentiating the Annulariidae.

Most Jamaicans are very friendly, so a smile and small conversation will quickly make a new friend. But the urban dweller's attitude is quite different from that of the rural Jamaican who rarely sees white tourists and thinks them a novelty. Jamaican children were fascinated and amused to learn that I was collecting snails, and could be very helpful if I showed them exactly what I was looking for, but I had to discourage them from over-collecting. Giving a few Jamaican dollars to helpers seemed to discourage them from asking for my sneakers, my tee-shirts, even my Nikon F-3 camera! And it is a good policy to ask permission and explain that one is doing scientific research before going on private property. One of my guides took me to his brother-in-law's farm in St. James Parish. Here he picked such snails as Orthalicus and Thelidomus from the trees with a long pole much like a Liguus pole. His young son picked up snails scattered on the forest floor. I found a nice variety of operculates buried in rock piles near the pig pen! And I got a chance to see how rural Jamaicans live.

Jamaican landshell collecting is by far the best and most interesting I have experienced. I guess my collecting has come full circle — now I return from a trip saying, "I wonder if I should have gotten my feet wet looking for marine shells while I was there?"

Reprinted from AMERICAN CONCHOLOGIST
Vol. 6, No. 1, pp. 4-6, March 1988
Publication of Conchologists of America

In the American Conchologist, the above report was illustrated by the author with a line-drawn map, black and white photos which included a dozen Jamaican species, and one color plate. The photograph in color was of the living Tudora (Colobostylus) humphreysiana, and won the photo award at the recent Long Island Shell Show.

EDITOR'S NOTE:

Through our interest in shells and shelling we have made life-long friends and have become acquainted with many more wonderful people, both through personal contact and through correspondence. Thus we doubly regret the present necessity to publish the following recently-received reminder:

AN OPEN LETTER TO ALL MEMBERS

[Name withheld by request.]

A number of instances over the past few years prompt me to put this warning into words. Under NO circumstances should any member of any local shell club or national organization take at face value, no matter how plausible the pitch may sound, the word of anyone who might approach you to buy, sell, exchange, or visit your collection, until you have contacted either the person or organization given as a reference, or someone in such an organization whose word and reputation YOU consider impeccable. It is too late after the fact to say "I wish I had....". You MUST verify any information being given to you.

Please, do not make the error of taking these words of caution too lightly. Careful checking in advance will certainly spare you much unhappiness and feelings that you have been taken advantage of.

SHELL MUSEUM PLANNED

A group in Florida has formed the Shell Museum and Research Foundation, Inc. Their long-term goal: $1,250,000 for a shell museum on Sanibel Island and the land to build it on. Their first choice of land on Tarpon Bay Road was refused because too much of the property was in the category of wetlands.

Their goal is high, but the group is enthusiastic. They are soliciting memberships and contributions. The address: P.O. Box 1580, Sanibel Island, Florida 33957.

NEW CATALOGS

Shell Elegant, P.O. Box 575, Tallevast, Florida 34270-0575, by Peggy Williams, who has gathered all manner of "shell-related" items for the "shell-shocked" seeker of elegant artifacts. Decorated tee-shirts, tote bags, hats, dishes, playing cards, aprons, bookends, ceramics, fabrics et cetera.

New to us is Donald E. Hahn's NATURAL HISTORY (Catalogue No. 17, undated, but publications are listed at least to 1986.) 47 pages, of which 1 1/2 pages list publications on Mollusca. Address: Donald E. Hahn, Natural History Books, Box 1004, Cottonwood, Arizona 86326-1004.

HAVE A BUSY SUMMER

Let us know how many of those great meetings and shell shows you manage to fit into your schedule this summer!

REPORT OF THE ADHOC NOMINATING COMMITTEE

PROPOSED SLATE OF OFFICERS FOR
1988-1989

In accordance with New York Shell Club's constitution, full members will vote for the 1988-89 officers at the Club's regular June meeting.

The following slate is proposed:

President	Al Scarpetti
Vice President	Irving Hoppenwasser
Recording Sec'y	Milton Werner
Corresponding Sec'y	Nancy McTiernan
Treasurer	Theta Lourbacos
Historian	Nick Katsaras
Editor	Dorothy Raeihle

In addition, the following are proposed as Directors:

Edward Cowles
Fred Cannon
Walter Sage
Lawrence Potter
Allen Aigen

Additional nominations may be made from the floor.

[Insert, NYSC NOTES Number 307.]

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1988-9

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 11, 1988
October 9, 1988
November 13, 1988
December 11, 1988
January 8, 1989
February 12, 1989
March 12, 1989
April 9, 1989
May 7, 1989 **
June 11, 1989

** The May meeting has been changed to the first Sunday in May to avoid conflicting with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your NYSC membership card for admission to the Museum for the meeting.)

SEPTEMBER 11, 1988, at 2:00 p.m.**

SURPRISE BEHIND THE SCENES TOUR, Walter Sage

OCTOBER 9, 1988, at 2:00 p.m.

SEA SHELL SCULPTURES, Chandler Davis with Karen Santry

NOVEMBER 13, 1988, at 2:00 p.m.

MINITALKS BY NYSC MEMBERS

**Please note that the first part of the meeting will be in Room 419; after 2:30 those present will go to the 5th floor of the Museum; those arriving after 2:30 will not be able to join the tour.

CONTENTS

		Page
Obituary: Celia Redmond Fuldner		2
Now It's Really Official! (NY State Shell)	Dorothy Raeihle	2
Goosefeathers	Bruce D. Stutz	3
The Bledsoe Collection	NCSC Newsletter	4
New Maritime Center in Connecticut	Daily News	4
Founders of West Coast Conchology by Joshua L. Baily, Jr. (Part I)	(Shells & Sea Life)	5
REVIEWS:		
Spondylus - Spiny Oyster Shells of the World, by Kevin Lamprell	Walter E. Sage	7
Marine Fauna & Flora of Bermuda, Wolfgang Sterrer, Editor	From Festivus	8
Treasures of the Tropica, by Rene Catala	From Festivus	8
A Sheller's Directory of Clubs, Books, Periodicals & Dealers, by Tom Rice	Dorothy Raeihle	9
ALVIN completes 2000th Dive	Sea Technology	9
Opisthobranchia	Shell-O-Gram	10
An Alleged *Conus striatus* sting in Israel;		11
Data on *Conus* stings. Mike Fainzilber in	Levantina	12
The Tenth International Malacological Congress	Levantina	12
Q. & A.: Marine Pharmacology; Gastropod?	Dorothy Raeihle	13
A Shelling Story (Hairy Triton)	Peggy Williams	13
Man or Muskrat ... Or Both?	D. W. Bennett	14
Our Freshwater Mollusks are in Trouble...	Columbus Dispatch	15
Miscellaneous Notes & News:		
NY's Brown Tide, Stock of Seashells Unlimited, Beach Cleanup, Hurricane Season	DEC, ALS, Sea Tech.	16
Sweet Sixteen is a Sweet Success	COA Convention	17
NYSC Officers for 1988-89		19
Program Notes for the Coming Year		19

CELIA REDMOND FULDNER

It is with sadness that we report the passing on May 15th of Celia Fuldner. She was a long-time member and friend who leaves us with affectionate memories.

Cele and her husband, Mansfield C. Fuldner, joined the New York Shell Club in 1959 and attended meetings regularly for many years. They also held membership in the New York Paleontological Society, pursuing another of their common interests — fossils.

Cele and Mansfield married in 1921 and would soon have celebrated their 67th anniversary.

Our deepest sympathy is extended to Mansfield and to their daughter.

dr

NOW IT'S REALLY OFFICIAL!

Approximately three and a half years ago, during a term in office of President Helen Paul, the Long Island Shell Club instigated a campaign to designate our bay scallop, Argopecten irradians, as the official shell of New York State. Through consultation, publicity, petition, and especially the efforts of LISC member Sheldon Katz of Riverhead, the campaign was crowned with success on August 3rd when Governor Mario Cuomo signed bill No. 63578 which had been sponsored by Senator Kenneth LaValle and Assemblyman I. William Bianchi.

We quote from the report by Laura Muha in Newsday of August 4th:

> Gov. Mario Cuomo noted that while the designation of the state shell was "a largely symbolic and ceremonial act," he hopes it will help focus attention on the "precipitous decline" of the scallop harvest.
>
> Between 1975 and 1984, he wrote, bay scallops from Long Island accounted for 20 percent of the nation's harvest of the shellfish. But in the past several years, the increasing brown tide has nearly wiped out scallops.
>
> The bay scallop was up against two contenders for the top spot from Long Island waters: oysters and clams. But in the end, said Assemblyman I. William Bianchi (D-Bellport), it was no contest (as) "A scallop shell is really beautiful."
>
> The honor shouldn't be taken lightly. Said Bianchi, "Now that we've got all these maritime problems — between sewage, sludge, garbage dumping, the brown tide — it hopefully, if nothing else, will call attention to the fact that this is a resource we shouldn't lose."
>
> And, perhaps, the bay scallop, official state shell, won't go the way of the sea scorpion — the official state fossil.

A celebration in recognition of the scallop's status is planned for early September, to be held at the New York State offices in Hauppauge. Participating will be New York State officials, the Long Island Baymen's Association, and the Long Island Shell Club.

Argopecten irradians irradians (Lamarck, 1819) is distinctive among the Argopecten of our Atlantic coast in that it is the largest —

growing to three inches and sometimes more — and has superior flavor. It ranges from Cape Cod to New Jersey, with eastern Long Island just about the center of its range. An identifying feature is that its 17 to 19 ribs are roundish in cross-section, while the two species to the south, A. concentricus and A. gibbus, have ribs that are squarish in cross-section.

Dorothy Raeihle

NOTE: The following article by Bruce D. Stutz is reprinted with permission from NATURAL HISTORY, Vol. 97, No. 8; Copyright the American Museum of Natural History, 1988:

GOOSEFEATHERS

The story, to judge by the details on Mycenaean pottery, was an ancient one and always went something like this: The fruits or leaves of certain trees fall into the sea and become barnacles. The barnacles themselves then grow on logs or ships' timbers, and at a certain point they fall off into the sea and become geese, either barnacle geese or Brant geese.

In the early thirteenth century the goose barnacle became a source of some clerical controversy. Irish priests had been caught eating geese during Lent. Because they had never seen the arctic nests of these migrating birds, the priests believed they arose from the goose-necked shells with feathery tendrils. So they considered them seafood, not fowl. But Pope Innocent III had his doubts and issued a bull in 1215 forbidding the eating of barnacle geese during Lent. Meanwhile, Rabbi Izaak ben Joseph of Corbeil, in France, concluded that if these geese did grow from the barnacles on the drifting wood, then Jews couldn't eat them because they were shellfish and so were forbidden under dietary laws.

Not until the eighteenth century was it more generally agreed that a barnacle was neither shellfish nor fowl (although Linnaeus called these barnacles Lepas anserifera, or "wild goose shellfish") but a crustacean, "a little shrimplike animal," as Thomas Huxley said, "standing on its head within a limestone house and kicking its food into its mouth with its feet." The goose barnacle's "feet" are the feathery cirri that wave back and forth in the currents, capturing floating food and pulling it into its mouth.

B.D.S.

The article "Goosefeathers" was accompanied in NATURAL HISTORY by an enlarged color photograph by Nancy Sefton of living goose barnacles. Not only have these little creatures been considered fowl, their double-valved shells found in the drift line have often been collected as a molluscan "stranger." The shell, perhaps to 3/4", is ivory-colored, sometimes blushed with pink, and edged with magenta to brown. The shape is somewhat like a long triangle inflated, and with a truncated tip. Do you have one in your box of "unidentifieds?"

dr

NOTE to Exchange Editors: For permission to reprint "Goosefeathers" or other articles from NATURAL HISTORY, address Mr. Thomas R. Miller, Natural History Magazine, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.

THE BLEDSOE COLLECTION

From the National Capital Shell Club's Newsletter #93, Summer 1988:

The subject of Dr. Jerry Harasewyche's talk at our annual banquet was the recently acquired shell collection of William D. Bledsoe of California at the Smithsonian. Still in packing boxes, it is being catalogued and computerized gradually. There are some 9,000 shells worth something like half a million dollars. Since there are already about 15,000,000 shells in our Museum, 9,000 more might not seem like so much - but these are fabulous shells, many of which are nonexistent or poorly represented in the vastnesses of the Fifth Floor. As Jerry said, perfect, gem, world record stuff is not the norm for acquisitions, even though some rarer new shells from 3,000 feet down in the Antarctic and such places are quite well represented now.

It required six days of packing by several persons to get it all here - and the packing material used was vermiculite. So far no shell has had a spine or spire broken either. This means that Kitty Litter, Tide and such other stuff can be forgotten, and a supply of vermiculite can be laid in - it is even better for making a potting mix also.

Some of the shells already unpacked and pictured for us in superb slides were:

12 *Cypraea guttata* (one a world record)
1 *C. fultoni* 64 mm
C. leucodon, *barclayi*, *teremachi*, and *sakurai*
C. broderipii - over 4 inches!
C. tessellata - world record
C. porteri - very large
7 *C. hirasei*
11 *C. langfordi*
Murex bequaerti - growth series
1 lemon yellow *Latiaxis deburghiae* - A rare South African volute, one of only 3 known.
+ Many *Pleurotomaria*, including a yellow one from Jamaica (*P. adamsoniana*).

NEW MARITIME CENTER IN CONNECTICUT

Connecticut's new $30 million Maritime Center aquarium/maritime history and theater complex opened the weekend of July 16th in Norwalk. It is a research center as well as an entertainment complex. The emphasis will be on entertainment and a range of educational programs from lectures to field trips aboard the RV Oceanic to scuba dips in a "wet lab" with instructors on hand.

A staff of professional marine biologists will supervise the center's extensive marine animal collection, which is displayed in carefully controlled and constructed replicas of their natural environment. Also on display are several notable vessels.

The center also houses an IMAX theater, in which films unfold on a curved screen six stories high and 80 feet wide.

One hour by train from Manhattan, Metro North has a package that includes round trip and admission (212) 532-4900. Or Maritime Center (203) 852-0700.

Travel, Daily News 7/24/88

FOREWORD: The name and works of "Josh" Baily are well known and respected among malacologists. For many years of his long life (1889-1981) he was associated with the San Diego Society of Natural History, to whom he bequeathed his extensive collection. The original text of the following talk, made more than half a century ago, is available in the San Diego Public Library. We thank Sally and Steve Long for bringing it to the surface and sharing by printing it in their monthly publication, Shells and Sea Life* of May 1988, as it includes much historical information not readily available. Because of its length, we will give it to you in succeeding parts.

FOUNDERS OF WEST COAST CONCHOLOGY

Joshua L. Baily, Jr.

Read before the San Diego Shell Club, November 27th, 1933

The current year is an appropriate time to consider the lives and labors of those who made the science of west coast conchology possible, for it was just two hundred and fifty years ago that the first collection of California shells of which there is any historical record was made. In 1683 the Vice-regency of New Spain sent out an expedition to explore the Straits of California, as the gulf was then called. The early geographers had noticed that the equatorial current flowed into the gulf, as evidenced by the tropical climate of the latter, and concluded therefore that it must have a means of egress at the upper end, and accordingly they represented Lower California as an island on all their maps.

The cartographer of this expedition was a priest of the Jesuit order, Father Francisco Euseblo Kino. When the expedition failed to find the sought-for passage, they disembarked at some point which cannot be fixed today, and made their way overland to the Pacific, where Father Kino gathered a few shells that were destined to change history.

In 1701 this same Father Kino was establishing missions among the Indians in the Gila valley, and while there learned that these Indians were using strings of wampum made of shells whose specific identity with those he had collected eighteen years before he was quick to recognize. But how had they gotten into Arizona? The Cocomaricopa Indians knew nothing about navigation and it was clear that they had not been brought in by boat. This was the first intimation that any white man had ever received that there might be a land connection between Lower California and the main land. After sending samples of shells from both localities to the headquarters of his order in Old Mexico, he set out on an overland expedition that was to make history. Late in 1701 he reached the Pacific, having walked the entire distance from Tumucacori. Travel in Lower California is difficult enough today, and when we think of the hardships that Father Kino must have encountered when he became the first white man to enter the peninsula by land, we cannot but admire the hardihood and intrepidity of the sons of Spain. Father Kino has made for himself a place in history beside those other explorers of the Jesuit order, Marquette and La Salle.

It would be interesting if we could say that his shells were preserved somewhere in the archives of his order, but unfortunately the mis-

* M. Sally and Steven J. Long, Publishers
Shells and Sea Life, 1701 Hyland Street, Bayside, CA 95524-9302.

sions that he labored so hard to establish, as well as those in Sonora which sent him out, are today represented mostly by ruined adobe walls. When Charles III suppressed the Jesuits in 1767 their property was scattered. We do not even know the name of the shells, for when they were collected Linnaeus' "Systema Naturae," with which all scientific nomenclature begins, was still seventy-five years in the future, and Father Kino's description of them as "beautiful blue shells" is too meager to be considered anything but a "nomen nudum."

But if we do not know what these shells were, we can at least make a pretty good guess at their identity. The most popular shell among the Indians of Arizona today for use as wampum is that known as "*Olivella biplicata*." Archaeologists tell us that this same shell has been so used for centuries. And no one who has ever seen a living specimen will deny its claim to be called beautiful. In color these shells range from white to black, through various shades of yellow, purple, chestnut and slate, but the columellar lip is always white, and stained with azure at its anterior extremity, so that the shell is sometimes popularly called the "Blue Point." And finally its distribution agrees exactly with Father Kino's statement, for on the Pacific coast it ranges as far south as Magdalena Bay, and is not found in the gulf. We therefore appear to be justified in concluding that the first California sea shell to attract the attention of a man of European birth was Sowerby's species, *Olivella biplicata*.

It was nearly a century after Father Kino's first discovery that the next European to visit California gathered shells. This was Captain James Cook, whose peregrinations in the eighteenth century covered practically the entire Pacific Ocean. Captain Cook was the first white man to see the statuary on Easter Island, and probably the first man of any color to see the ice wall that fringes the antarctic continent. He did not describe any of the shells which he collected, but he took them back to England, where they fell into the possession of Thomas Martyn, who named them and described them in the "Universal Conchologist," published in 1784.

This work has certain features that have made later authorities question its scientific value, but its illustrations are so very beautifully executed that there can be no doubt as to what was the first California shell to receive a scientific name - it was the well known *Calliostoma annulatum*, and anyone who is familiar with this species can readily imagine the enthusiasm with which Captain Cook must have gathered these beauties to take back to the old country.

The first west coast shell to be named by the original collector is the razor clam, *Siliqua patula*, a very popular article of diet in Puget Sound region, and one which can always be obtained either fresh or canned in the markets of Seattle and Portland. Captain George Dixon described it in the "Narrative of a Voyage Around the World," published in 1789. In those days canned goods had not been invented, and on long voyages the principal food stuff was salt meat, with the result that outbreaks of scurvy were frequent, and perhaps it is not going too far to say that without the help of *Siliqua patula* Captain Dixon would have had difficulty in circumnavigating the globe.

Captain Dixon described several other species, without, however, giving them names. Among these was a mussel, easily recognized as the familiar Mytilus californianus. He tells us that the Indians on Queen Charlotte's Island made spear points from the shell, and that he saw one specimen fourteen inches long. It does not grow nearly so large in San Diego County, where a specimen six inches long is considered unusual.

His failure to name all the species he described perhaps indicates Captain Dixon's lack of professional training, although he must have had considerable experience as an amateur scientist. No professional conchologist would have missed such an opportunity to give names to species that he knew to be non-descript. Captain Dixon was a navigator primarily, and a conchologist incidentally.

(To be continued)

REVIEW:

SPONDYLUS - Spiny Oyster Shells of the World

by Kevin Lamprell. 1987. 84 pp., 30 + 6 unnumbered color plates. E. J. Brill, Leiden. Hardcover, $18.25.

One family of mollusks among the most attractive to collectors and general public alike is the colorful and often ornately ornamented Spondylidae. Many award-winning displays have been created to share with others the beauty of these elegant and exceedingly variable shells. Until the advent of this volume, there has been no current reference book on these fascinating bivalves, which may vary from small to quite large, featherweight to massive, and virtually spineless to truly "thorny."

The author, though not a trained malacologist, appears to have thoroughly researched the many names that have been used to designate species in this family. It is noted that 63 names were proposed for Spondylus prior to 1800, and a list is provided, with the author's comments on the validity of each taxon, of the species names published after 1798 - a total of 161 additional names. Of this total of nearly 225 available names, slightly less than 100 are listed or figured as actual or potentially recognizable species or forms.

Following the introduction and historical review of the Spondylidae, the bulk of the volume is devoted to the 30 plates and accompanying text, which provide name, with author and date of original description, a discussion of each species, an indication of size, habitat, and geographic range. Two pages of references and a two page index complete the volume.

This reviewer is not a specialist in Spondylidae, so he cannot comment authoritatively on the validity of the listed species. This book is not a detailed monographic treatment, as photos of type specimens or original figures are not included for most taxa, but this book can serve as the basis for such a monograph. The variability of these species precludes illustration of their extensive intraspecific variation - the problem for this reviewer's untrained eye is that many of the species look very much alike. The author unfortunately gives only a description for each species - no comparisons of similar species nor differential diagnoses are given. We therefore have to take the author's word for the validity of the species and the synonymies he details. In using this book, the reviewer finds that he can generally take an already named specimen and verify that name, but it is not easy for him to take a "nameless" shell and reliably identify it.

Apart from these relatively minor difficulties, the author is to be commended for doing a fine job in giving us a much needed book on a popular bivalve family. The color plates are good, descriptions are adequate, and the price of the volume quite reasonable. This reviewer recommends this volume as a worthwhile addition to any conchological library.

Walter E. Sage

REVIEWS:

MARINE FAUNA AND FLORA OF BERMUDA, A SYSTEMATIC GUIDE TO THE IDENTIFICATION OF MARINE ORGANISMS

Editor: Wolfgang Sterrer. Illustrators: Wolfgang Sterrer and Christine Schoepfer Sterrer. Publisher: John Wiley & Sons, New York 1986. 742 pages, 228 black & white plates, 16 color plates, 2 maps, hardbound. Price: $99.95.

This new book DOES Bermuda! It covers the plant kingdom from fungi to flowering plants and the animal kingdom from protozoa to mammals (whales). Each section is treated by specialists in the field. The black and white drawings are excellent and the color plates beautifully illustrate groups such as Algae, Porifera, Anthozoa and Decapoda. The color plates of the mollusks are limited, but their illustration in black and white is superior.

For the Mollusca, as well as the other groups, each class is broken into the following sections: Characteristics, Occurrence, Identification, Biology, Development, References and Plates. The molluscan species are listed by their Latin names and authors (no dates) followed by their common names and brief synonymies.

A twenty-three page reference section, a glossary and taxonomic index are included. For those who work with North Atlantic species, this book will be a must. For others, it might be on their wish lists.

* * *

TREASURES OF THE TROPICS

By Rene Catala. Photography by Rene and Stucki Catala, with some exceptions. Publisher: Facts on File Publications, New York 1986. Translated from the French by Enzo Sirna (first edition OFFRANDES DE LA MER published entirely in French in 1980). 334 pages, 700 full color photographs, large size, hardbound. Price: $50.00.

This gorgeous book is by Dr. Rene Catala, who established the Biologie Marine (known as the Aquarium Noumea) in Noumea, New Caledonia in 1956 and with his wife, Stucki, managed the aquarium for twenty years. Most of the exquisite photography is of specimens collected by them for the aquarium from an area between five and twenty-two kilometers from the aquarium. The author states that many of the corals and fish survived in the aquarium for the twenty years under their care. It was from material collected for the aquarium that Dr. Catala established, in 1957, that corals fluoresce.

The informative text is written in a conversational style easily understood by the non-professional and is referenced with footnotes. The author considers himself a non-specialist and states that there may be taxonomic errors (which there are).

There are over 180 magnificent photographs of mollusks alone, including some with egg masses and photographs of cephalopods hunting. All animals illustrated are identified by their Latin names and the figure legends include short descriptive and/or habitat notes.

This is not your usual cocktail table picture book and one need not be conversant with New Caledonian fauna to appreciate and want to own it. It is an incredible bargain at $50.00.

From The FESTIVUS Vol. XX(7):70, 1988,
A Brief Look at Two New Publications.

REVIEW:

A SHELLER'S DIRECTORY OF CLUBS, BOOKS, PERIODICALS AND DEALERS

Last spring Tom Rice published the 12th edition of his widely known SHELLER'S DIRECTORY ... This 1988 edition is of 82 pages crammed full of information gathered from all over the world and is, as always, most useful to the armchair collector, those who buy and/or exchange by mail, the collector who travels, and even the casual shopper for baubles. It should also be in shell club libraries.

The index is divided into columns listing Clubs, Books (by area), Dealers - Outside U.S., United States Dealers, Periodicals. The many advertisements present additional information as to the wares available, whether wholesale or retail.

The Directory carries a very modest price tag of only $4.95. To obtain a copy, write to: Of Sea and Shore, P.O. Box 219, Port Gamble, Washington 98364.

Dorothy Raeihle

ALVIN COMPLETES 2000th DIVE

Woods Hole Oceanographic Institution spokeswoman Shelley Lauzon told Sea Technology that the venerable submersible ALVIN accomplished what the institution regards as a possible world record March 22nd when she submerged for dive No. 2000. "She will be 25 years old next year and we think no other submersible has accomplished as many research dives as has ALVIN," she said. Chief pilot Ralph Hollis was to take ALVIN and two scientists to approximately 2600 meters depth to continue plate tectonic studies along the East Pacific Rise offshore Mexico. For nearly nine hours, Drs. Wilfred Bryan (Woods Hole chemist) and Roger Hekinian (from the French ocean agency, IFREMER) were to observe a point on the ridge where two separate rifts have formed. The three are also expected to retrieve samples of volcanic rock, polymetallic sulfide deposits, and some of the exotic animals that live on the ridge.

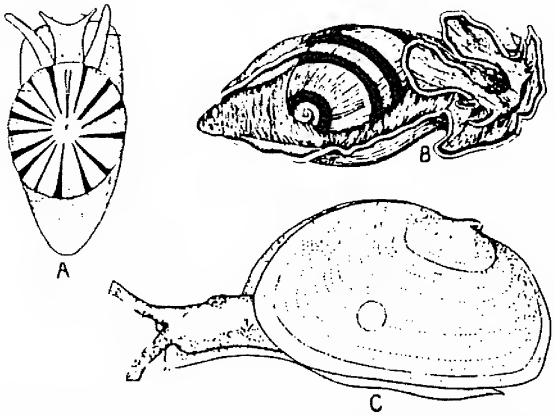
Sea Technology 29(4):9

In their report published in Oceanus 27(3), 1984, Distribution of Mollusks in Vents and Seeps, Drs. Ruth D. Turner and R. A. Lutz tell how it was the use of ALVIN which made possible the discovery in 1977 of the remarkable animal communities at deep-sea hydrothermal vents. Further in the report they mention that on February 12, 1979 at the Galápagos "Mussel Bed" site, ALVIN made Dive 887. Thus in the intervening years — until the 2000th dive last March, which was made off Mexico — ALVIN had made an average of slightly more than two dives a week. Hardly time to dry off between dives!

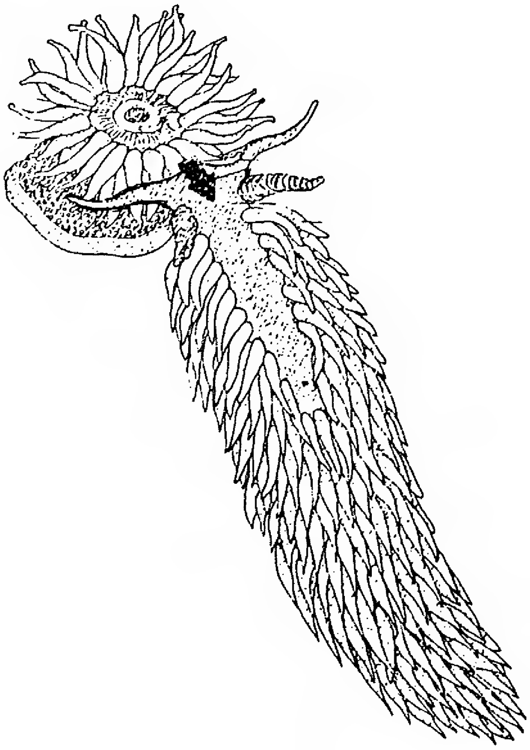
dr

OPISTHOBRANCHIA

These slug-like mollusks vary from shell-bearing animals to ones which have no shells at all. They occur from the low tide level, where they inhabit rock pools and the undersides of rocks to many hundreds of meters. Some live on algae or sand, others swim or float in the water column as part of the plankton community.



A, notaspid Tylodina, with patelliform shell
B, Hydatina
C, bivalved opistobranch Berthelinia.



A nudibranch feeds on an anemone whose nematocysts are then stored in the cerata of the attacking nudibranch.

The bubble shells, the canoe shells, the pupa shells, and the philines all live in sandy or muddy areas and prey on other small mollusks. Some bubble shells are well known for their brilliantly colored animals and fragile shells.

As a group the umbrella shells contain few species. The shells are fragile, slightly concave, limpet-like structures. The exposed soft parts of the animals are covered in wart-like pustules, and their colors vary from bright yellow, through to orange and grey. Umbrella shells feed exclusively on sponges, eating entire colonies down to the base.

Without doubt, the largest (up to 450 mm) and most numerous opisthobranchs in terms of numbers in any one location at any time are the sea hares. They are cyclic in occurrence and appear in shallow bays to mate and lay eggs. All opisthobranchs are hermaphrodites and lay their egg strings en masse among algae and sea grass. Sea hares possess a gland which produces a chemical dye for the purpose of deterring predators.

Nudibranchs obtain their oxygen from external gill structures. It is these exposed filaments which give the nudibranch its name, from Latin words meaning 'naked gill'. In many species the gills are located toward the posterior and are retractile; they can be withdrawn if danger threatens.

Nudibranchs may be interesting to the scientist, naturalist and photographer, but to the collector, or average diver, these animals are rarely recognized as mollusks.

It's difficult to imagine that many of these brilliantly hued wisps of fragility are in reality voracious carnivores. Some feed on sponges, consuming large portions and forming noticeable cavities and hollows in them. Although many sponges contain minute, needle-sharp spicules, these pass through the nudibranch without apparent damage to the digestive organs. A few species have the ability to ingest the stinging cells, or nematocysts, of coelenterates. They can eat sea anemones, sea fern hydroids, Portuguese men-of-war, and the polyps of hard corals without triggering the loaded stinging cells, which are then stored inside club-shaped structures, called cerata, on their upper surfaces. The stored batteries of stinging cells are housed by the nudibranch as a means of Defence.

Rather strange mollusks found within the subclass Opisthobranchia are the mangrove and marsh slugs. Their drab colors and blob-shaped bodies blend in so well with their habitats that in many cases they elude searchers. These onchidiids have a number of extremely interesting features. Not only do some species have 'eyes' on their tentacles, they also have 'eyes' on their backs, in a fashion similar to chitons. These 'eyes' or light detectors may number up to a hundred and are mounted on retractile papillae which can be erected in different patterns. Onchidiids can also exude defence secretions from glands in the back. A particularly interesting feature of this group is that they breathe air.

References:

Natural History of Marine Animals, by MacGinitie & MacGinitie
Shells Alive!, by Neville Coleman
The Marine Biology Coloring Book, by Thomas Niesen

From: The Shell-O-Gram, 29(1):4
Jacksonville S.C., January 1988

AN ALLEGED CONUS STRIATUS STING IN ISRAEL

by

Mike Fainzilber
Marine Biology Department
Israel Oceanographic & Limnological Research
P.O. Box 8030, 31080 Haifa, Israel

During a recent visit to the coast of Sinae, Egypt, I heard a story about a case of a Conus striatus sting. The story was told to me by the victim, a Bedouin gentleman called Abdu, who lives near the Nabek Mangrove Lagoon. He was wading across a flat sandy portion of the reef flat at night, hunting lobsters, when suddenly he felt a sharp sting in his bare foot. Thinking he had stepped on a stingray, he kicked the sand, and unearthed a large Conus striatus. He was able to positively identify a Conus striatus specimen (with periostracum) from a selection of 15 species of cones that I spread before him.

The pain was "very bad" and lasted for a "long time". Treatment consisted of steeping the foot in hot herbal tea, and drinking large quantities of coffee. The foot was swollen for days, and walking was painful.

The gentleman came forward with the story when he observed our group collecting cones, intending to warn us of the dangers involved. Despite communication problems (the story was told in broken English, Arabic and sign language), I am inclined to believe it. The details are similar to recorded cases of stings of Conus striatus (Stoneman, 1978), the victim was able to identify a specimen of Conus striatus from amongst a selection of local Conus species, and there were no obvious exaggerations in the story.

The only other case of a Conus sting known to me from the Gulf of Aqaba was reported by Tsuriel (1978). That was a case of a sting by Conus geographus, when a child picked up a specimen on the beach at Elat. The child recovered after three days.

REFERENCES

Stoneman, H., 1978. A case of a Conus striatus sting. Levantina, 15:168-16.

Tsuriel, P. S., 1978. First record of a Conus sting from Elat. Levantina, 14:150.

* ** *

DATA ON CONUS STINGS

Dr. A. J. Kohn of the University of Washington in Seattle wants information on cone stings. In case you have the distinction of being a victim, here are the facts Kohn wants:

> Your name, address, age, sex. Species, location, and length of cone responsible for the sting. Do you still have the shell?
>
> Part of body stung. Immediate effects and duration of effects. Were there persistent after-effects? How long did they last?
>
> Treatment of wound, including medical attention. Name and address of doctor or hospital. Was the incident reported in any periodical? If so, which and date? If possible, attach photocopy.

Dr. Kohn asks to have the information sent to him at: Department of Zoology NJ-15, University of Washington, Seattle, WA 98195.

* ** *

AND DATA CONCERNING LOCAL CONUS STINGS

Data concerning any additional local cases of Conus stings (from the Red Sea and the Mediterranean) are wanted by Mike Fainzilber, who can be reached at the Marine Biology Department, IOLR, P.O. Box 8030, 31080 Haifa, Israel.

From: LEVANTINA No. 64:685-686
The Israel Malacological Society

THE TENTH INTERNATIONAL MALACOLOGICAL CONGRESS

The Tenth International Malacological Congress will be held from August 27 to September 2, 1989, in Tübingen, Southwest Germany.

Papers dealing with any aspects of Malacology are invited for oral or poster presentation. Malacologists wishing to attend should be prepared to submit provisional titles of papers, together with one or two sentences exposing the questions dealt with therein (instead of an abstract for which it would be too early), before September 30, 1988. Address inquiries to the current president of Unitas Malacologica:

Dr. Claus Meier-Brook
Tropenmed. Inst. d. Univ.
Wilhelmstr. 31
D-7400 Tübingen, F.R.G.

Q and A

O.L.T. asks: "Marine Pharmacology -- what zat?"

Pharmacology is the science of drugs including materia medica, toxicology, and therapeutics (we quote Webster). How can this relate to shell collecting? Easily! Marine pharmacology is that branch of the science which explores the composition of marine flora and fauna in hopes of finding material for use in modern medicine. A few of the subjects for study: the venoms of the blue-ringed octopus and the deadly cones, toxins from a number of other mollusks as well as sea worms and more. There are so many questions: what is the chemical composition of the "fire" in fire coral, of the "sting" of a Portuguese man-of-war, of the irritation from a sponge et cetera? Many of us have endured the shuddering pain from an injection by the long-spined sea urchin — what is the chemical composition of that purple fluid and how can it be counteracted?

Food species have been studied extensively, a few especially so in the light of a thoughtful question posed a few years ago, wondering if there was a connection between diet and ailment after observing that there was very little arthritis among islanders whose main diet consisted of strombs and clams.

As for flora, the most important (to date) is the leafy seaweed that has been used as food for centuries. Agar, which is extracted from some of the red algae, is widely used as a stabilizer in foods (ice cream, for one) because of its gelatinous properties. It is also used as a culture medium.

* ** *

B.G. asks: Worms crawl along on their bellies; so do snakes. Does that make them gastropods?

Well, it would seem logical considering the translation of the word, which is from the Greek: gastero = belly + pod = foot, but in reality the term "gastropod" is applied only to mollusks (Class Gastropoda).

Dorothy Raeihle

A SHELLING STORY

The camouflaging effect of the "hair" cf a Hairy Triton, Cymatium parthenopeum, is truly great, and in its natural environment--covered with filamentous algae and other organisms--the shell is hard to spot.

Recently, I was treated to an intertidal shelling expedition in Japan, where we visited a port area with many boats pulled up high on concrete ramps covered with slippery green algae. What should I find in the grooves of concrete, hidden by the hairy epidermis resembling the algae, but Hairy Tritons! Not just one or two, but a couple of dozen, so that I stopped picking them up! It's possible the fishermen had brought them in--but they seemed to be living there.

The Tritons are among the few circumglobal mollusks. Most other shells have similar "sister" species in various parts of the world, but the Tritons found in Japan and Florida are the same species. I have noticed, too, in photographing various Triton species, that they all have spectacularly spotted and colored bodies, in reds, yellows, greens, even blues--though each species' coloring is unique.

Peggy Williams in her Shell
Elegant catalogue 1(2):5, 1988

CONSERVATION:

MAN OR MUSKRAT . . . OR BOTH?

D. W. Bennett, Editor,
UNDERWATER NATURALIST, ALS

A few years ago, a man called the office with a problem: he lived on a tidal river, and it seems a resident muskrat had taken to coming ashore on this man's property where it proceeded to pull at and dig up the lawn.

"I work hard to have a nice lawn here," said the irritated landowner, "and this muskrat digs it all up. I called the local extension service, and they said put out some poisoned sweet potatoes, but they didn't work. What can I do to solve the problem?"

"Sell your property to someone who likes muskrats," was our reply.

We were serious.

Many environmental problems along shores of waterways are caused by people who, while they have moved to the coast or to a river valley, are really not at all at home with what water's edges offer. Consider the evidence:

* Homeowners on barrier islands bulldoze dunes to get a better view of the ocean.
* They cut down mangroves or trees along stream banks for the same reason.
* They replace native vegetation with grass which needs fertilizer, weed killers, water, and fungicides, all of which reach nearby water in polluting quantities.
* They move near a salt marsh and then ask the state to kill the greenhead flies.
* And classically, they move onto the floodplain — ocean or river — and then express surprise when the water enters their abodes, surprise followed by action as they file claims for federally subsidized insurance.

To rub it in, they (or the developers) have named homes, developments, or streets after the very habitats or species they have eliminated: Dune Drive, which is now a four-lane highway; Osprey Lane, now Starling Park; Pleasant Meadows, which instead features weedless lawn grass; and, our favorite, Ocean View Estates, just about to become Submarine City.

It is tempting to propose a means test for those who plan to live near water. Maybe they should sign an agreement to accept the territory on its own terms, and acknowledge that water flows (and tides rise and fall), that marshes and river edges are muddy, that jellyfish, sea robins, sand burrs, ticks, and hurricanes are part of the deal.

People are flocking to the coast; the water's edge is the nation's fastest growing area. But it has its own seasons of production, its own way of doing things, and its own needs. The last thing it needs is someone telling it how to act.

UNDERWATER NATURALIST 17(2):32, May 1988;
Bulletin of the American Littoral Society

OUR FRESHWATER MOLLUSKS ARE IN TROUBLE, TOO

[Following is a brief summary of an Associated Press report by Bill Vogrin which appeared in the Columbus (Ohio) Dispatch July 17, 1988:]

Savana, Illinois — Ecologist Richard Sparks has worked the muddy bottoms of the Mississippi and Illinois rivers studying freshwater clams and mussels — nature's water filters — and he doesn't like what he sees.

The shelled creatures are disappearing from their native North American riverbeds, where they spend their lives filtering polluted water. Scientists cite two reasons: One is massive deaths, as yet unexplained. The other is the appetite of the Japanese cultured pearl industry, which grinds tiny beads from mussel shells and imbeds them in oysters to produce pearls. Overzealous shellers are staging a rush on U.S. mussel beds.

D. E. Ballenger, owner of the Mississippi Valley Shell Co. in Muscatine, Iowa, employs about 130 harvesters. He exports his shells to Japan and is working with environmentalists for state action to protect the mussels from over-harvest. "We're getting more and more shellers from out of state," he said. "The mussel beds down South are exhausted and they're moving up here."

Shelling is a multimillion-dollar industry, with shells alone selling for $300 to $1,000 per ton. Tennessee Shell Company's John Latendresse cited industry research: "We exported $16 million worth of mussels to Japan in 1986," and added "We're exhausting our mussel beds to supply their industry. It's a big problem, and I'm very concerned about it."

Even representatives of Japan's cultured pearl industry are concerned about overharvest in the United States. "It's a free-for-all out there," said Nori Sakata, president of the Sakata Pearl Company of Tokyo. "It's not just the Mississippi River. It's the Ohio River and others. They definitely need restrictions. The commercial harvesters are overdredging the rivers. They don't give the mussel beds a chance for any new growth to occur. Everybody's trying to get in on it and they're starting to dredge smaller rivers. It doesn't do any good for the ecology. ... If people don't protect their resources they're going to lose them."

Recent studies about mussel deaths in U.S. rivers during the past five years have focused on an invasion of disease-carrying Asiatic clams (Corbicula -Ed.). No matter the cause, their loss trickles through the ecosystem. Rivers become more polluted without nature's filters, and wildlife that once fed on the little creatures are driven from the area in their search for food.

Of several proposed solutions to the situation, the most exciting to Sparks was that river sanctuaries be created for endangered mussels. Seven sites along the Illinois side of the Mississippi River have been proposed as sanctuaries, where scientists would have unrestricted access to study mussels and clams. But Latendresse is not impressed with the sanctuary idea. "Several states have created sanctuaries, but they don't follow up with research funds to study the mussels so the sanctuaries are worthless," he said. "There's so much money to be made, the shellers poach them out of the sanctuaries."

From: Tracking the vanishing river clam,
Article sent in by Dorothy Germer.

MISCELLANEOUS NOTES AND NEWS

NEW YORK'S BROWN TIDE — An informative article by Dr. Robert Nuzzi, chief of the bureau of marine resources of the Suffolk County Department of Health Services. It may answer some of your questions. See: The Conservationist 43(2):30-35, September-October 1988, New York State Department of Environmental Conservation.

SHELLS — The stock of Veronica Johns' shop, Seashells Unlimited, has been moved to Dorothy Jensen's Broadway Dance Studio and is to be dispersed. If you are interested in acquiring any of the material, get in touch with Dorothy for an appointment to see her at the studio, 3108 Broadway, Astoria. Phones: (Studio) 718:274-1503, (Home) 718:726-5614 or write to her: P.O. Box 2205, Astoria, New York 11102.

NATIONAL BEACH CLEAN-UP DAY — Saturday, October 8, 1988. American Littoral Society and the New York State Department of Environmental Conservation are co-sponsoring efforts to pick up and record types of plastics and other floatables washing up on New York beaches. Volunteers are needed for several beach areas including Breezy Point, Coney Island, Bar Beach in Hempstead, Orchard Beach in the Bronx, South Beach in Staten Island, and Dubos Beach in Jamaica Bay, to name a few. Last year's data was used by Senator D'Amato to get MAR POL legislation passed, which restricts ships from dumping plastics at sea. Call Don Riepe if you would like to volunteer — 718:634-6467.

From ALS NY/NJ Chapter News, June 1988

IT'S HURRICANE SEASON AGAIN — Editor Emeritus Larry Booda writes in Sea Technology 29(6):93, June 1988, Editor's Corner: It was during the time that Richard Frank was administrator of National Oceanographic and Atmospheric Administration that he ordered that hurricane names become bisexual. Men's names are now mixed in with the women. So once again we list the names for a hurricane season, 1988, in the northern hemisphere, June 1 through November 30.

The leadoff Atlantic storm for 1988 will be: Alberto, followed by Beryl, Chris, Debby, Ernesto, Florence, Gilbert, Helene, Isaac, Joan, Keith, Leslie, Michael, Nadine, Oscar, Patty, Rafael, Sandy, Tony, Valerie and William.

The first hurricane occurring in the eastern North Pacific will be called Aletta. Aletta will be succeeded by Bud, Carlotta, Daniel, Emilia, Fabio, Gilma, Hector, Iva, John, Kristy, Lane, Miriam, Norman, Olivia, Paul, Rosa, Sergio, Tara, Vicente and Willa.

Names are selected from library sources and agreed upon during international meetings of the World Meteorological Organization by the nations involved. The practice of naming hurricanes began several hundred years ago in the West Indies. Many hurricanes were named after the particular saint's day on which they occurred. Before the end of the 19th century, Clement Wragge, an Australian meteorologist, began giving women's names to tropical storms.

(Hopefully, few of these names will be used! — Ed.)

SWEET SIXTEEN IS A SWEET SUCCESS

The 16th annual Conchologists of America Convention was held at the Sheraton Harbor Place Hotel, Ft. Myers, Florida, July 11-15, 1988. This year's theme, entitled "Sweet Sixteen" was indeed a sweet experience and wonderful time for all. The conventioneers were warmly welcomed by the City of Palms, Ft. Myers, as well as by the host shell club, Southwest Florida Conchologist Society. Gene Herbert, President of SWFCS and Co-Chairman of the convention, did a super job in administering the convention in a timely and orderly manner. Assisting Gene was Co-Chairman Al Bridell, who coordinated a fine group of programs and speakers. Gene, Al, and COA President Don Young are to be congratulated for their superior efforts in making this year's convention so successful and a convention to be remembered by all who attended.

On Monday, July 11, following registration, Gene Herbert and Don Young officially opened the convention with their welcome speeches to the conventioneers. First on the program was Gloria Scarboro, that fun sheller and noted speaker from the Astronaut Trail Shell Club, who gave her interesting and humorous slide talk, "Shelling Australia 1987". Later that afternoon Les Easland presented his slide program on the previous COA convention in St. Louis. That evening was the Welcoming and Get-acquainted Party. Wine, cheese, fruits and other snacks were the order of the evening. Believe me, there was plenty of "good cheer" being spread around.

On Tuesday we settled down for a good morning of programs given by Dr. R. Tucker Abbott (The Virtues of Land Snails), Bob Lipe (Habitat to Aquarium), Al Chadwick (Collecting Shells in the British Isles), and Dr. Emily Vokes (Indo-Pacific Murex). That afternoon was the live shelling trip to Bokeelia in Charlotte Harbor and dinner at the Crab Shack. Soon after most of the group were in the water shelling, a tremendous thunderstorm hit the area and sent everyone running for cover amid terrible lightning bolts. Naturally, everyone chose this time to descend on the Crab Shack, so there was a long line waiting to be served. But, all in all, it was a great time. The food was outstanding and after the storm we were able to continue shelling. Quite a few shells were found, and we thank Dennis Dworak for letting us use the facilities of his shop for cleaning our live treasures.

Wednesday was full of interesting programs. We heard Wayne Harland (Galapagos Island Shelling), Richard Goldberg (Land Shells Through the Lens), a panel presentation by Dr. R. Tucker Abbott, Betts Johnson and William Hallstead on the Sanibel Museum and future disposition of personal shell collections, and Prof. Eliezer Rios (Shells from Rio Grande do Sul deep water). After lunch came talks by Richard Forbush (Shelling in French Polynesia), James Ernest (Panama Shelling), and Kevan Sunderland (Molluscs of Isla de Margarita, Venezuela). The programs were followed by the COA annual business meeting and election of new officers. The officers for 1988-89 are: President - Alan Gettleman; Vice President - Peggy Williams; Secretary - Dave Green; Treasurer - Walter Sage. A large number of very fine coorprizes were presented during the business meeting, making it worthwhile to stay and participate. At 7:30 that evening Marty Gill opened an outstanding auction which consisted of over 200 lots of specimen shells and shell-related items. Some 3½ hours later the final lot was sold and the books balanced. The auction netted over $6,400 for COA, a sum which testifies to the hard work of all involved.

Programs continued on Thursday morning - Rob Masino (Shelling at Utila Island, Honduras), Peggy Williams (Shelling in Tobago and Belize), and Hank Foglino (Sound in the Sea). That afternoon, the conventioneers were treated to tours of the Thomas Edison Home and the Shell Factory. At 6:30 the dealer bourse opened and everyone ran from dealer to dealer looking at all the beautiful shells and spending money. This bourse was mind-boggling with that many super shells under one roof.

The dealer bourse continued on Friday morning and concluded at noon. A poolside party was held Friday afternoon with Gene Herbert as Master of Ceremonies and Walter Sage acting as judge for the games. Many more prizes were given for the winners, and a lot of fun was had by all. At 7:00 the banquet kicked off under the theme of "Christmas in July". After a delicious meal, the conventioneers were treated to a super program by Dr. Emily Vokes entitled "Shelling Around the World".

On Saturday morning a post-convention fossiling trip to the APAC pits in Sarasota took place. A tent was set up to provide a shady retreat from the heat, soft drinks were provided, and Dr. Ed Petuch was there to identify our fossil finds.

In conclusion, "Sweet Sixteen" was a super time. Nearly 375 people registered for the convention, with additional family members also in attendance, and others attending for special functions. Local New York Shell Club members in attendance include Nick Katsaras, Rae Varga, Richard Goldberg, Ed and Mary Dunlap, Walter Sage, Hans and Arline Reimann, and Sol and Mary Weiss.

This year's convention was a tremendous financial success for COA, with over $10,000 being raised through silent and oral auctions, T-shirt sales, name badges, and raffles. These monies will be used to support COA projects such as the Grant Awards, Trophy, and our publication, AMERICAN CONCHOLOGIST. We thank all who attended and helped make this 16th convention so memorable.

The 1989 COA convention will be in San Diego, California, and the 1990 convention in Melbourne, Florida. All interested "shellers" are invited to attend our conventions and to join COA. We encourage everyone to come to San Diego and join in the festivities for COA's 17th annual convention - you WILL enjoy it!

adapted by Walter Sage from
the article written by Dave
Green in the August issue of
Central Florida Shell News

NEW YORK SHELL CLUB OFFICERS FOR 1988-89

At the New York Shell Club meeting on June 12, 1988, the following members were elected to office for 1988-89:

President	Al Scarpetti
Vice President	Irving Hoppenwasser
Recording Sec'y	Milton Werner
Corresponding Sec'y	Nancy McTiernan
Treasurer	Theta Lourbacos
Historian	Nick Katsaras
Editor	Dorothy Raeihle
Directors	Edward Cowles
	Fred Cannon
	Walter Sage
	Lawrence Potter
	Allen Aigen

A unanimous vote of appreciation was extended to the officers who served during the past year.

PROGRAM NOTES FOR THE COMING YEAR

The coming season of meetings is the 40th Anniversary of the founding of the New York Shell Club. In celebration we have planned a very interesting series of meetings, and the following tentative schedule is presented so that our members, friends and guests may plan to attend.

September 11, 1988 - SURPRISE BEHIND THE SCENES TOUR, Walter Sage

Tour of the shell collection of the American Museum, focusing on recent acquisitions, current projects, and a demonstration of the computer-assisted cataloging procedure that has been developed recently.

October 9, 1988 - SEA SHELL SCULPTURES, Chandler Davis with Karen Santry

Chandler Davis is a sculptor and fine arts painter from Norwalk, Connecticut whose subject matter focus for the past eight years has been the sea shell. Professor Karen Santry from the Art and Design Department of the Fashion Institute of Technology will lecture on the slide presentation of Mr. Davis' large outdoor sculptures and oil paintings of sea shells.

November 13, 1988 - MINITALKS BY NYSC MEMBERS

Current projects and interests of our members.

December 11, 1988 - DR. R. TUCKER ABBOTT

Dr. Abbott's subject will be announced in our December issue. The meeting at the Museum will be followed by dinner at a nearby restaurant for all who wish to come.

PROGRAM NOTES FOR THE COMING YEAR (cont.)

January 8, 1989 - SOCIAL AT FRED CANNON'S HOME

Those who have seen Fred's shell collection will not miss this chance to see his beautiful shells again. In addition, Fred will have lovely Christmas decorations in place, and refreshments will be served. Further information and travel directions will be in the December issue of SHELL NOTES.

February 12, 1989 - DIVING AND SHELLS, Peggy Prall

and don't forget our annual Social/Auction April 9, 1989.

For your convenience, the schedule of meeting dates for all of 1988-89 is printed on the back of the yellow cover sheet.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1988-9

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 11, 1988
October 9, 1988
November 13, 1988
December 11, 1988
January 8, 1989
February 12, 1989
March 12, 1989
April 9, 1989
May 7, 1989 **
June 11, 1989

** The May meeting has been changed to the first Sunday in May to avoid conflicting with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

NEW YORK SHELL CLUB NOTES No. 309 December 1988 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your NYSC membership card for admission to the Museum for the meeting.)

DECEMBER 11, 1988, at 2:00 P.M.

New York Shell Club 40th Anniversary Meeting

SPEAKER: R. TUCKER ABBOTT

early history of N.Y. Shell Club, general history of shell clubs in the U.S., early U.S. malacological studies

After the meeting, those who wish to are invited to join us at DOBSON'S RESTAURANT, 341 Columbus Avenue, (a few blocks from the Museum) for dinner (Dutch treat!).

JANUARY 8, 1989, at 2:00 P.M.

MID-WINTER SOCIAL at the home of Fred Cannon

292 Warren Street, Brooklyn

see Page 19 for travel directions

FEBRUARY 12, 1989, at 2:00 P.M.

SPEAKER: MARGARET J. PRALL - "WHERE SHELLS LIVE"

slide presentation covering the Caribbean area and the New Jersey-New York area from the shore line to about 100 feet down

---

CONTENTS

		Page
Christopher Columbus and *Pteria columbus*	Stella Maris Turk	2
The Lambis Lawyer's Corner (Diver's flag)	Mark B. Slavin	4
Founders of West Coast Conchology (II)	Joshua L. Baily, Jr.	6
1989 Winter & Spring Shows & Meetings	Donald Dan	9
More Manhattan Shelling	Steve Rosenthal	11
PUBLICATIONS:		
A Classification of the Living Mollusca assembled by Kay Cunningham Vaught	Pub. announcement	11
Molluscan Species in the San Carlos Rectangle, Sonora, Mexico: a listing by	Poorman & Poorman	12
AMU-WSM Joint meeting announced	Festivus	12
Highlights of the June Meeting	Milton Werner	13
Highlights of the September Meeting	Milton Werner	13
Highlights of the October Meeting	Milton Werner	14
Diver's Log	Charlotte Lloyd	15
A Tip (for preserving fragile specimens)	NCSC Newsletter	17
Spine Structure in *Spondylus americanus*	John Root	18

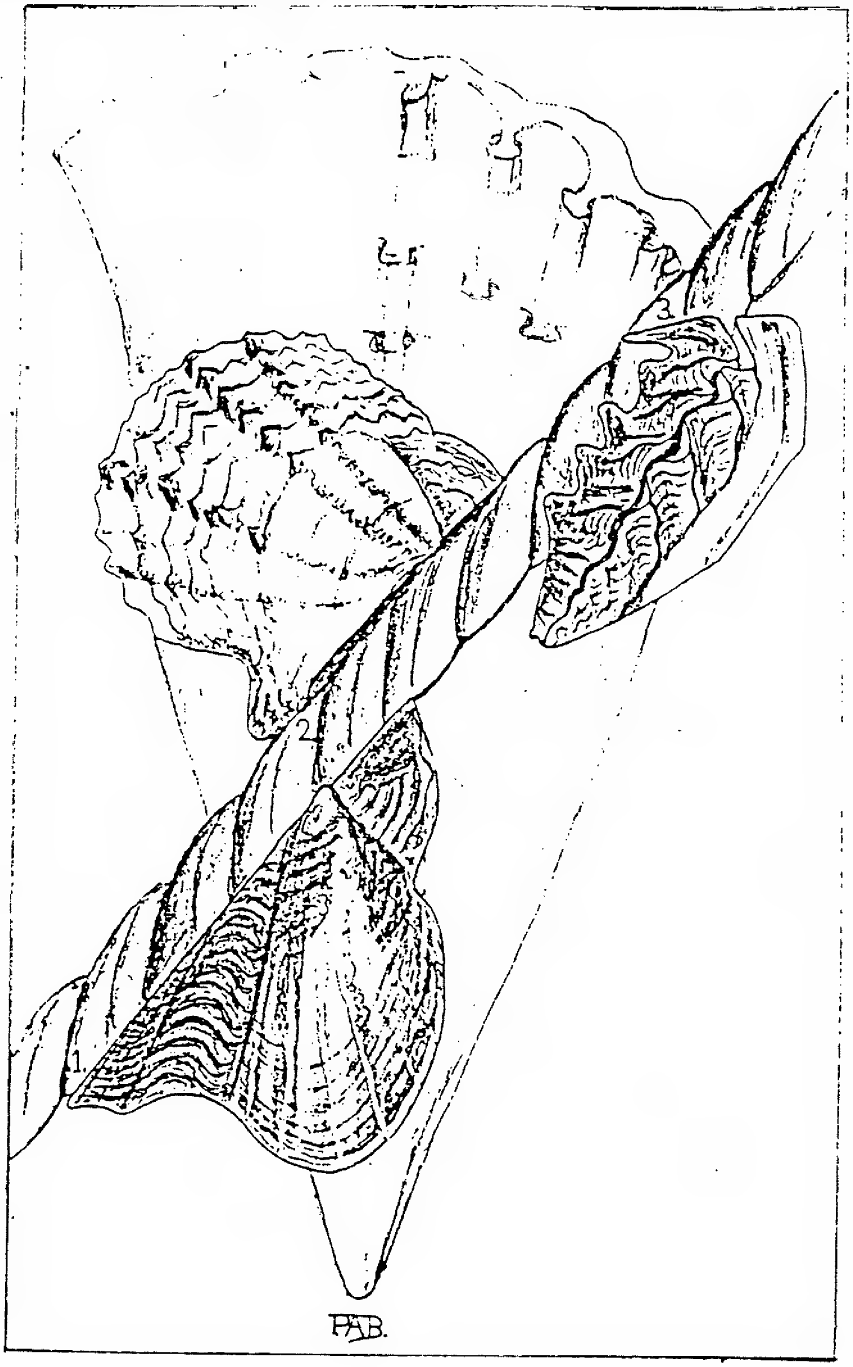
FOREWORD: The following report appeared as the lead article in the June 1988 issue of The Conchologists' Newsletter, a copyrighted publication of the Conchological Society of Great Britain and Ireland. The article is reprinted here with the cordial permission of Newsletter Editor P. E. Negus and that of the writer, Mrs. Stella Maris Turk.

CHRISTOPHER COLUMBUS AND PTERIA COLUMBUS

In the 15th century Christopher Columbus reached America; in the 20th century Pteria columbus, in company with other marine fauna, reached Europe, or to be more exact, the tip of Great Britain – Cornwall. It was December 1986 when a fiber-glass speedboat was found drifting off St. Ives, and towed into the harbour. A photograph appeared in the local press and later I obtained a few coloured prints via Mr. Vince Burton. These photographs showed the boat to have been covered with a dense growth of large goose barnacles which were scraped off and sold as food by one of the leading sea-food distributors, for such barnacles are considered a delicacy in many parts of the world. There were said to be some identification marks on the boat suggesting that it had drifted from America, that it had taken two years to reach here and that it had been used for smuggling. There the matter ended for six months. In June 1987 Dr. Paul Gainey, a biology teacher with a keen interest in marine life, re-discovered the vessel in a boatyard in Fal Estuary, and to his amazement he found that the inside of the boat was packed with marine fauna that no one had touched. He brought to me a miscellany of creatures with details of where they were positioned. The dominant species – present in thousands – was a fan mussel, provisionally identified as Atrina rigida, which ranges from North Carolina to South America. Its byssal threads had 'fixed' the impacted sand which at some stage had filled the boat. Another habitat was provided by the thick wire hausers on which other species of bivalves were attached by byssi, namely the Winged Pearl Oyster, Pteria columbus, usually clustered on plants on the sea floor, and the Spiny Tree Oyster, Pinctada radiata: the former is distributed from N. Carolina to the West Indies, and the latter lives on the Florida coast. Their shelly claspers embracing the hauser, were a couple of specimens of Lopha folium which has an ecomorph especially adapted to cling to fan corals (Gorgonacea). There was a single example of Musculus sp. and there were several examples of scallops, all with slightly 'hunch-backed' shells: these are probably a species of Hinnites and are currently being examined by Jan Light, to whom I am grateful for preliminary comments. Apart from the molluscs, there were barnacles (the common goose barnacle, Lepas anatifera, and a sessile barnacle Balanus trigonus which is a circumtropical ship-fouling species), a specimen of the Gulfweed Crab, Planes minutus, or near species, and two sea urchins probably of West Indian provenance, one of them a cidarid or 'pencil-spine' urchin.

So had there been no other evidence, the fauna alone would have indicated the origin of the drift boat! – a boat that had had its hull hollowed out to take extra cargo (illegal immigrants or drugs?) and three 120 horsepower engines (to escape from customs men?).

Due to modern systems of communication and the phasing out of wooden sailing vessels, drifting derelicts are now rare, but in the late 19th and early 20th centuries they were all too common, pre-



senting hazards to shipping: between 1887 and 1893, there was a total of 1,628 sightings (Richardson, 1985). Repeated sightings of named abandoned ships provided the first large-scale and long-term measurements of ocean trajectories, new charts of which are given by Richardson (loc.cit.). He states that most derelicts were first reported in September to November after severe storms and were located in the Gulf Stream off the United States coast, whence they drifted eastwards towards Europe. The average time they remained adrift he reckoned as 30 days, the longest being 1,100 days. All would have accumulated varying amounts of marine fauna and many must have represented a great weight of maritime tragedy, not only relating to the first loss, but also subsequent loss of life if the hulk was the direct cause of a collision. The full story of the St. Ives speedboat will doubtless never be known, but it reminds one of past perils at sea as well as an important form of dispersal of marine life.

I am indebted to Dr. A. J. and Dr. E. C. Southward for examining some of the fauna and for drawing my attention to the paper on drifting derelicts; and to Mrs. Tricia Burton for the drawing.

REFERENCE

Richardson, P.L., 1985. Drifting derelicts in the North Atlantic Prog. Oceanog. 14: 463-483.

Stella Maris Turk

FOOTNOTE

In her letter of November 4th, Stella Turk writes that Dr. Solene Morris (of the Mollusca Section, British Museum (Natural History)) has kindly made the following corrections to her article:

Pteria colymbus, not columbus.

Pinctada imbricata, not P. radiata (which is a synonym).

Lopha frons, not Lopha folium.

(Ed.: DR)

THE LAMBIS LAWYER'S CORNER

by Mark B. Slavin, J.D.

At a recent board meeting of the Greater Miami Shell Club, as legal counsel for the club I was asked my opinion on several legal matters relating to the club's activities. As a result of those questions, I have decided to write articles from time to time involving some of these topics. Wherever possible, I'll directly quote the law involved and, where necessary, interpret it thereafter.

It should be realized that any interpretation of any law changes on a fairly frequent basis as new laws are passed and as Appellate Courts interpret the law. Local laws may change from town to town or county to county, and court interpretations may refer to one segment of Florida but not another. Furthermore, it has been said that asking a question of two lawyers will result in three opinions. It is somewhat difficult to rebut this truism.

Therefore, for whatever it's worth, gain some enlightenment into the laws of our state as relating to our hobby.

****

DO WE REALLY HAVE TO DISPLAY A DIVER'S FLAG WHEN WE GO SHELLING?

The law can be found in Florida Statute 861.065, titled DIVERS; DEFINITION; DIVERS-DOWN FLAG REQUIRED; PENALTY. - (1)

(1) "Diver" means any person who is wholly or partially submerged in the waters of the state and is equipped with a face mask and snorkel or underwater breathing apparatus.

(2) "Underwater breathing apparatus" shall mean any apparatus, whether self-contained or connected to a distant source of air or other gas, whereby a person wholly or partially submerged in water is enabled to obtain or reuse air or any other gas or gases for breathing without returning to the surface of the water.

(3) "Divers-down flag" shall mean a flag that is either square or rectangular, to approximately 4 units high by 5 units long, with a 1-unit diagonal stripe. The divers-down flag shall have a white diagonal stripe on a red background. The stripe shall begin at the top staff-side of the flag and extend diagonally to the opposite lower corner. The flag shall be free-flying and shall be lowered when all divers are aboard or ashore. The minimum size shall be 12 by 12 inches.

(4) All divers shall prominently display a divers-down flag in the area in which the diving occurs, other than when diving in an area customarily used for swimming only.

(5) Any violation of this section shall be a misdemeanor punishable as provided by s. 775.082 or s. 775.083.

This is one of the more clear-cut statutes. There are a few difficulties in interpretation. For instance, if we are diving at Missouri Key and spread out over a large distance, how many dive flags are required within that area? Subsection 4 would seem to state that such flags are not required in a public bathing area such as a beach. However, there is no real definition of what "an area customarily used for swimming only" would constitute.

Essentially, after one gets away from the quibbling over definition, the law states that you have to have a diving flag whenever you are diving. The lack of said diving flag could result in conviction of a second degree misdemeanor which, in the State of Florida, means penalties of jail time not exceeding 60 days and/or $500.00. While I seriously doubt that many people have been prosecuted for this particular statute, it is interesting to note that several members of our club were stopped on a recent Keys trip by a police officer asking to see the dive flags. There are no easy answers.

In addition, it should be noted that there is usually a civil suit aspect to any criminal law. In English, this means that should a boater inflict damage on a diver, an extremely important factor would be whether the boater knew, or should have known, of the presence of the diver. No dive flag equals no notice to boaters. Ignoring a dive flag, or failing to take adequate care when seeing a dive flag, would reverse the burden and place it upon the boat captain.

Finally, it should always be remembered that being 100% dead tends to discourage future shelling activities. The dive flag is not only a legal necessity. It is an absolute must for safety's sake in any area other than a public beach.

Having grown up around the water and having been a Dade County lifeguard for several years, I have seen several individuals who have had the misfortune to come into contact with motor boat propellers. Recently, the Miami Herald reported the death of a youngster due to such an accident. It simply makes good sense to have dive flags in an area where there may be boats.

My next column will cover the law regarding taking of Queen Conchs (Strombus gigas). If you have any legal questions regarding Florida shelling, see me at a meeting or call me (office - 931-5522). Until then, I wish you all good thoughts and good shelling.

Reprinted from THE MOLLUSK 26(10):6-7, October 1988
Publication of the Greater Miami Shell Club, Inc.

FOREWORD: We present the second installment of the talk by Joshua Baily read before the San Diego Shell Club November 27th, 1933 and published in the May 1988 issue of Shells and Sea Life by Sally and Steve Long, 1701 Hyland Street, Bayside, California 95524-9302. The reprint is to be continued in future issues of these NOTES. See NYSC NOTES No. 308, pages 5-7, for the first installment.

FOUNDERS OF WEST COAST CONCHOLOGY (II)

Joshua L. Baily, Jr.

Probably the first scientifically trained conchologist to visit the Pacific coast of North America for the express purpose of collecting natural history material was Dr. Johann Friedrich Eschscholtz, a member of the faculty of the University of Dorpat in Esthonia, whose name is perpetuated for us in that of the California state flower, the wild poppy, or Eschscholtzia. He was the naturalist accompanying the expedition of Otto von Kotzebue, which left St. Petersburg, as that city was then called, in 1815, and which during the following eleven years visited the Azores, the West Indies, the Straits of Magellan, New Zealand, the East Indian Archipelago, Japan, Kamtschatka, Alaska, San Francisco, Honolulu, Madagascar, the west African Coast, and all way stations. It is said that Catherine the Great had planned this expedition to gather material for the Academy of Sciences in St. Petersburg, but she died before her plans could be consummated.

Accompanying Eschscholtz was a German named Rathke, who kept the log book of the expedition, and his description of the sojourn which they made in San Francisco constitutes a most interesting contribution to California state history. In those days there were no settlements in California except those that had grown up around the missions, and Eschscholtz and Rathke visited every one of these from Monterey northward. Rathke speaks of the Mission Dolores, as being nearly hidden by a cornfield, and being located some miles out of town — a description which cannot but be amusing to those who have visited this historic landmark in the heart of a modern city of San Francisco.

Rathke also speaks of visiting the Spanish capital of California at Monterey, and of the hospitality shown them by Don Luis Arguello, the Comandante. It seems that Eschscholtz was very anxious to visit the Russian colony at Fort Ross, about sixty miles north of San Francisco, but as there was no road between the two capitals this would have been impossible had it not been for the kindness of Don Luis, who supplied the explorers with a military escort and a guide named Joaquin Estudillo. This last named was a brother of Jose Antonio Estudillo who lived in San Diego, and who built the house in Oldtown popularly but erroneously known as "Ramona's Marriage Place."

In these days there remains nothing to remind the tourist of the extent to which the Russians had colonized northern California, except a few place names such as Bodega, Sebastopol, and St. Helena, and the little Greek church still standing at Fort Ross. But in the early days of the nineteenth century the Russians held a monopoly on the whale and seal fisheries of the Pacific, and their capital of Russian America on Kodiak Island was a trifle too far north for comfort. Consequently in 1811 they negotiated with the Spaniards for permission to maintain a supply base in California. The story of Count Rezanoff, who had charge of the negotiations for Russia, and of the assistance he received from Senorita Concepcion de Arguello, sister of Don Luis already mentioned, with whom Rezanoff fell in love, and the termination of this romance by the death of Rezanoff and the retirement of Concepcion to the Dominican convent at Benecia, is related in Bret Harte's poem.

The Russians seem to have been culturally more advanced than the Spaniards, for one expedition brought back word to Monterey that one of Mozart's operas was being rehearsed at Fort Ross. If this opera was ever produced, it was probably the first performance of grand opera within the limits of the United States as presently constituted.

Rathke describes the expedition as crossing San Francisco Bay, and passing a high mountain (which must have been Mt. Tamalpais) and crossing a divide and descending into a valley running northwest, where they encountered a storm more violent than a hurricane which they had experienced the winter before in the West Indies. Trees were uprooted, and houses unroofed. This latter does not mean much, as the houses of the Indians were not very substantially built. When the explorers finally reached the ocean, they saw a fishing boat that had been driven onto the rocks. Eventually they reached Fort Ross, and Rathke speaks of meeting the priests at the Greek Church and discussing the welfare of the Indians with them, and he tells us that the attitude of the Greeks was very different from that of the Franciscans at Monterey, though he does not say in what the difference consisted.

Eschscholtz seems to have specialized in the limpets, which were then all called Patella. He recognized that those of California were different from those of the Old World, and he gave them the name Acmaea. There are probably more species of this genus on our coast than in the rest of the world, but at that there are not nearly so many as Eschscholtz thought there were, for he seems to have a new specific name to almost every specimen taken, and the huge synonymy that has resulted forms a striking contrast with Captain Dixon's modest reticence shown by his sparing use of new names.

The first conchologist to enter California by land from the east was an Englishman, Thomas Nuttall. Coming to America when quite young, he had settled in Philadelphia, becoming associated with the Academy of Natural Sciences in that city, and taking up the study of botany with William Bradbury. These two made a collecting trip to the Great Lakes, from where they went down the Mississippi and up the Missouri to the head of navigation of the latter. Here they were captured by hostile Indians, and narrowly escaped being scalped. Later, while returning home, they lost their way, and were rescued by friendly Indians when on the point of starvation. A few years later Nuttall undertook another excursion, this time to the Carolinas.

Dana tells us that after leaving San Diego they were out of sight of land until they reached Staten Land, Patagonia, where Nuttall was very anxious to go ashore to collect, but the captain refused, and in picturesque maritime language mentioned another locality where he would rather put him ashore.

On arriving at Boston, Nuttall learned that he inherited a title and an estate in England, contingent on his residence in that country. At first he considered refusing it, but subsequently decided to accept it, and rather reluctantly presented all his material to Harvard, and left America never to return.

In 1839 the British vessel, H.M.S. Sulphur, visited various ports on the coast, under the command of Captain Belcher and Lieutenant Kellet, neither of whom were specially interested in natural history. But the ship's surgeon, Dr. Hinds, made up for this deficiency and collected not only along the shore, but went inland as well. The names of these men are perpetuated in such shells as Fluminicola hindsii, Chrysodomus kelletti, and Forreria belcheri. This last was formerly thought to belong to the genus Chorus, and the name Chorus belcheri, as it was then known, can best be Anglicized as Belcher's Chorus, which is capable of two meanings.

The first collection of west coast fossils was made by one who was destined to make a name for himself in subsequent history. In 1847 the New York State Museum sent John C. Fremont to Oregon to gather fossils, but the descriptions of these seem not to have been published until forty years later.

In the next few years many changes took place in California. The secularization of the missions was completed. The Russians abandoned Fort Ross. California became an independent republic, and later joined the Union. Then gold was discovered, and two waves of immigration took place: one in covered wagons from the east, and one in windjammers from both shores of the Atlantic. Means of communication with, and transportation to and from the east, became necessary. The most interesting attempt to achieve this end was the abortive effort of Jefferson Davis, at that time secretary of war in Franklin Pierce's cabinet, to establish a line of camels between San Antonio and the coast, the complete story of which is the subject of Lewis Lesley's work, "Uncle Sam's Camels."

Now this chapter in the United States History has no conchological significance, but on account of its intrinsic interest, perhaps I may be pardoned for making a digression.

Camels are in many respects superior to pack mules. A camel can pack a cargo that might stagger a twelve-mule team. And a camel can walk faster than a mule can run. Also, camels carry their own power plants, so that the operating company need not maintain so many service stations. But camels have their disadvantages. A camel considers himself socially equal to, if not superior to, his driver, and woe betides him who would drive a camel with profanity as he would a mule. A mule's shoe is made of iron and fastened with nails; a camel's shoe is made of leather and fastened with needle and thread. It was necessary to import camel drivers from the orient to instruct the muleteers, many of whom were temperamentally unfitted to learn. When a caravan makes camp for the night, the mule expects to be fed and watered, but the camel prefers to service himself, and unless promptly coralled will show his driver that it is sometimes necessary to walk many more miles than one for a camel.

But the most serious drawback to camel traffic is that the camel has an atmosphere that produces a most astonishing effect on the olfactory organs of the horse. The story is told that when Cyrus was founding the Empire of the Medes and Persians he found it necessary to defeat the army of Croesus king of Lydia, who maintained the finest disciplined cavalry the world had yet seen. Other things being equal, the Persians would have been no match for them, but other things were not equal, for Cyrus sent his cavalry onto the field of battle mounted on camels, and when the Lydian horses got wind of what was coming, they stampeded, and the Persians won a glorious victory without firing a shot. And in memory of that day, every horse and descendent of a horse will begin to paw the ground, and show the whites of his eyes, and lay his ears along his neck with the concave side up, even if he only hears the radio playing "The camels are coming."

Even though camel trains were refused admittance to corrals in which horses and mules were kept, they might have succeeded in displacing the more usual type of pack animal had the civil war not taken place, necessitating a suspension of service. When the war was over Jefferson Davis no longer enjoyed the prestige at Washington that was formerly his, and when the first railroad was completed over the mountains it was seen that the days of the camel train were numbered, else we might be exploring our national parks on camels instead of pack mules today.

(To be continued.)

1989 WINTER & SPRING SHELL SHOWS & MEETINGS

Compiled by Donald Dan

January 13 - 15	Naples Shell Show, Naples, FL, at the Naples Depot Contact: Bea Sweet, The Blue Mussel, 478 5th Ave. South, Naples, Florida 33940 (813) 262-4814
20 - 22	Astronaut Trail Shell Show, Melbourne, FL, at the Melbourne Auditorium. Contact: Jim & Bobbi Cordy, 385 Needle Blvd., Merritt Island, Florida 32953 (407) 452 5736
27 - 29	Greater Miami Shell Show at the North Miami Armory Contact: Gayle Motes, 7305 N.W. 59th Street, Pamarac, Florida 33321 (305) 726-5190
February 3 - 5	Broward Shell Show, Pompano Beach, FL Contact: Wayne Harland, 2549 S.E. 15th Street. Pompano Beach, Florida 33062-7504 (305) 942-3950
9 - 11	Fort Myers Festival of Shells, Fort Myers, FL (formerly Southwest Florida Shell Show). Contact: Jean & Bill Hallstead, 1077 S. Yachtsman Drive Sanibel, Florida 33957 (813) 472-9397
17 - 19	Sarasota Shell Show, Sarasota, FL Contact: Vi Hertweck, 637 Sheridan Drive, Venice, Florida 34293 (813) 497-1501
24 - 26	St. Petersburg's 42nd Annual Shell Show, Treasure Island, FL Contact: Bob Lipe, 440 75th Avenue, St. Petersburg Beach, Florida 33706 (813)-360 0586
March 2 - 5	Sanibel Shell Fair, Sanibel, FL Contact: Ralph Moore, Sanibel-Captiva Shell Club, P.O. Box 355, Sanibel, Florida 33957 (813) 472-2511
8 - 9	Marco Island Shell Club Show VIII, Marco Island, FL Contact: Dolly Bergman, 58 North Collier Blvd., Gulfview #1503, Marco Island, Florida 33937 (813) 642-6595
17 - 19	Treasure Coast Shell Show, Stuart, FL Contact: Ruth Wischmann, 5370 SE Ebbtide Avenue Stuart, Florida 34997 (407) 288-6864

April 7 - 9	Greater Georgia Shell Show, Atlanta, GA, at the Market Square Mall. Contact: Bill & Bunny Fulton, 3878 Granger Drive, Chamblee, Georgia 30341 (404) 451-3441
May 5 - 7	Central Florida Shell Show, Orlando, FL, at the Science Museum. Contact: Marianne Cheeseman, 202 Cottonwood Drive, Winter Springs, Florida 32708 (407) 699-8729

* * *

June 17 - 18	VIII Salon International du Coquillage, Lutry, Switzerland. Contact: Dr. Ted W. Baer, 1602 La Croix, Switzerland (021) 393771 or 207371
19 - 24	Conchologists of America Convention, San Diego, CA Contact: Don Pisor, 10373 El Honcho, San Diego, California 92124 (619) 279-9342
25 - 30	American Malacological Union Annual Meeting, Los Angeles, Ca. Contact: Dr. James H. McLean, Los Angeles County Museum of Natural History, 900 Exposition Boulevard, Los Angeles, California 90007 (213) 744-3377 (See also p. 12)

The following list of meetings in 1989 appeared in the Quarterly Newsletter of the National Shellfisheries Association (Editor: John W. Ewart, College of Marine Studies, University of Delaware, Lewes, Delaware 19958. Telephone (302) 645-4060):

February 12 - 16	Aquaculture '89 will be held at the Westin Bonaventure Hotel in Los Angeles, California. The meeting will serve to focus on the importance of aquaculture in the United States (of) shellfish and fish.
April 20 - 25	The Seventh Annual International Pectinid Workshop is scheduled to be held in Portland, Maine. Contributed papers and posters will be solicited from workshop participants. Contact: Sandra Shumway, Department of Marine Resources, West Boothbay, Maine 04575 (207) 633-5572
August 27 - Sept. - 2	The Tenth International Malacological Congress will be held in Tubigen, Federal Republic of Germany. Contact: Dr. Claus Meier-Brook, President, Unitas Malacologica, Tropenmed. Inst. d. Univ., Wilhelmstr. 31, D-47000 Tubigen, Federal Republic of Germany.
October ?	The First International Conference on Shellfish Depuration is being scheduled for Orlando, Florida, sometime during the month of October, 1989. Contact: Dr. W. Steven Otwell or Dr. Gary E. Rhoderick, Conference Chairmen, Food Science and Human Nutrition Department, University of Florida, Gainesville, Florida 32611.

EDITOR'S NOTE: You have undoubtedly noticed that two "regulars" do not appear on the schedule of shell shows. (1) Donald Dan reports that Palm Beach has continuing problems of finding suitable space. (2) We have not received the date for the Jacksonville show.

DR

MORE MANHATTAN SHELLING

Steve Rosenthal

Following the advice of Jacobson and Emerson in Shells from Cape Cod to Cape May (p. 106), I headed out one Saturday morning to go shelling in the "many Italian fish stores found on First Avenue below 14th Street." Well, times must have changed since Jacobson's and Emerson's second edition (1971) because the only fish store I found was a sushi bar. Undaunted, I thought I'd head towards Chinatown, and that's where the fish market sheller can really hit the jackpot nowadays, it would seem. Virtually every cross-street had at least one fish market.

Among the periwinkles, mussels, and whelks (Littorina littorea, Mytilus edulis, and Busycon carica or Busycon canaliculatum), presumably from local waters, were some oddball surprises. About 33% of the markets had Babylonia whelks for sale (with animals, shells, and opercula). I have yet to determine which species they were – I was told they were from Hong Kong. They were always priced at $1.40 per pound, but I guess the two perfect specimens I selected for myself were not even close to a pound, as the proprietor of the first market I came to with the Babylonia just gave them to me, giving me a look that betrayed his amusement at somebody wanting but two (not even enough for an appetizer, I guess).

The "hot" item at every store was the "Manila Clam" (Tapes philippinarum to you and me). The markets all had splashy signs from their distributors espousing the quality and value of this little clam, and the patrons were really snapping these up – I think these were the only shellfish I actually saw anyone buying. Our own local Venus, Mercenaria mercenaria, was represented in the markets, but the Manila Clam was by far the big seller. Is this yet another factor in our growing trade deficit – the imported goods proving more desirable than the comparable homemade or home-grown product?

The "rarest" shell (noted in only one of about 25 markets) was the Pacific Geoduck clam (Panopea generosa), probably brought in from Washington State. At $4.00 per pound this was the most expensive mollusk I saw offered.

The only disappointment experienced during my little adventure was my inability to find any Mercenaria mercenaria notata, but from the bus I've noticed this pretty interesting shop on First Avenue at 52nd Street, that has bins full of Busycon and Mercenaria on ice right inside the window. I think I'll try there next!

From IRRADIANS, LISC, October 1988

PUBLICATIONS:

A CLASSIFICATION OF THE LIVING MOLLUSCA

Assembled by Kay Cunningham Vaught. Edited by R. Tucker Abbott and Kenneth J. Boss. American Malacologists, 1988. viii + 188 pp. Permanent, plastic comb binding $17.00; library, hardback, $21.00.

The most recent and complete classification of all living mollusks from Classes and Orders through families, genera, subgenera and all their synonyms. Over 15,300 supraspecific scientific names. Embraces 8,500 accepted genera and subgenera arranged in proper systematic order, with authors and accurate dates.

Assembled over a period of ten years with the assistance of such leading malacologists as Beu, Houbrick, Keen, Rosewater, Ponder, Scheltema, Solem, Vokes and Waren. Includes all names through 1987. Not since Thiele (1935), Wenz (1944) or Zilch (1958) has there been such an account published.

Available from the publisher: American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Plastic comb binding $17.00 plus $1.40 mailing; Hardback, sewn $21.00 plus $1.20 mailing. (Massachusetts residents add 5% tax.)

Publisher's Announcement

A REPORT OF THE MOLLUSCAN SPECIES IN THE SAN CARLOS RECTANGLE, SONORA, MEXICO, COLLECTED BY FORREST L. AND LEROY H. POORMAN FROM DECEMBER 1953 TO DECEMBER 1983

By

Forrest L. and Leroy H. Poorman
15300 Magnolia Street, Space 55
Westminster, California 92683

The June 9th, 1988 issue of FESTIVUS, XX(6):47-63, is given over to the publication of a carefully prepared list of close to 900 species which the Poormans collected over the years from their Sonora Triangle — an area approximately three miles wide and five miles long in the upper Gulf of California. A line map and bibliography are included along with an informative preface.

To describe the list, we present a shortened version of the format:

1. The species number and the scientific name are those used in Keen (Sea Shells of Tropical West America, 1971) with generic and species names updated when possible. ...
2. A small letter after a number indicates that a synonym in Keen (1971) has been elevated to specific rank with the letter representing its placement in that work ...
3. A capital letter after a number indicates a species not included in Keen (1971) and is intended to show approximate placement among the hierarchy of species in that book.
4. An asterisk after a number indicates a significant new distributional record. (There are quite a number of these. —Ed.)
5. Habitats and dredging depths are given for all species. ...

The FESTIVUS is published by the San Diego Shell Club. Single copies of an issue are priced at $5.00 each plus postage. Address all correspondence to San Diego Shell Club, Inc., c/o 3883 Mt. Blackburn Avenue, San Diego, California 92111.

Dorothy Raeihle

ANNUAL MEETING – AMU-WSM

It was announced that the Western Society of Malacologists will have its next meeting in Los Angeles in conjunction with the American Malacological Union, June 25-30, 1989, at the Davidson Conference Center of the University of Southern California. It is being co-chaired by AMU president-elect Dr. James H. McLean and WSM president-elect Dr. Hans Bertsch. For further information, contact either Dr. Bertsch or Dr. McLean, Los Angeles County Museum of Natural History, 900 Exposition Blvd., Los Angeles, CA 90007.

FESTIVUS XX(8):83

HIGHLIGHTS OF THE JUNE MEETING

In her treasurer's report, Theta Lourbacos presented the figures of the April auction: net income was $1,964.26. She also noted that postage costs will be higher in the coming year, and reported that 76 Club pins had been sold from the recent new supply.

All present expressed sympathy and signed a condolence card for past president Mansfield Fuldner, who had recently lost his wife, Celia, after 67 years of marriage.

In the annual election of officers, there were no nominations from the floor and the following slate was presented: President, Al Scarpetti; Vice President, Irving Hoppenwasser; Recording Secretary, Milton Werner; Corresponding Secretary, Nancy McTiernan; Treasurer, Theta Lourbacos; Historian, Nick Katsaras; Editor, Dorothy Raeihle; Directors: Edward Cowles, Fred Cannon, Walter Sage, Lawrence Potter and Allen Aigen. It was moved and carried that the secretary cast one ballot for the entire slate, and this was done. The new slate was welcomed and an expression of appreciation was given to the retiring president and vice president, Ed Cowles and Dr. Walter Jacobs.

Dr. Walter Jacobs noted that some clubs meet at the museum in the evening, and asked for comment on our trying this. Responses were generally unfavorable because of nighttime transportation situations.

Eli Horowitz was the first speaker, reporting on his recent fossil shell collecting in Florida in the Sarasota Bay area. He also noted that he had seen many live specimens, but took none of these. He mentioned the Mote Marine Aquarium in the Jungle Gardens, which displays shells, and said that there are fossils for the collecting at Hidden Lake. Among the shells he displayed were Conus, Strombus, turrids, Melongena, Architectonica, Fusus, Oliva, Murex and Vasum, also Ostraea and some other bivalves.

Ed made a presentation he called "Here and There," showing slide photos of a number of shells and some Caribbean scenery and village scenes.

The door prizes were two Voluta barnesi, won by Eli, and two Conus virgatus, won by Rose.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE SEPTEMBER MEETING

After a brief business period, members attending the September meeting were escorted to the office and workroom of Walter Sage, Senior Scientific Assistant in the American Museum's Department of Invertebrates. Walter, who is in charge of the Museum's shell collection, had on display shells recently received, and he pointed out the importance of these additions to the collection. Among these shells were:

1. A large number of specimens collected and donated by Doug von Kriegelstein - shells from western Pacific, west Panama, Cocos Islands, Costa Rica.
2. A gem adult specimen of the volute Cottonia nodiplicata, purchased with funds generously donated by friends of the department.
3. Paratypes of Conus boui, Chicoreus cosmani, and Naquetia fosteri -

species recently described as new to science and donated by collectors.

4. Holotype and paratype of Vasum stephanti Emerson and Sage, 1988, a species described from specimens donated by collectors.
5. A large collection of Panamic province specimens collected over many years by Helen DuShane of Whittier, California.
6. Specimens collected on Wake Island by Dr. Edward A. Dunlap.
7. Holotype and paratype of Fusilatirus pacificus Emerson and Moffit, 1988, a new genus and species known from three specimens taken crabbed in very deep water off Arakane Reef, Mariana Islands.
8. Specimens of the genera Morum and Harpa to demonstrate work done by Emerson and Hughs showing that these genera both belong in the family Harpidae.
9. A specimen of the rare Perotrochus midas, a deep water slit shell from the northern and central Bahamas, a species new to the AMNH collections. Reference was made to two articles in the July issue of The Nautilus that record the presence of P. amabilis and a new species, P. charlestonensis, in deep water off Charleston, South Carolina and document that these primitive mollusks feed on sponges.
10. Specimens of Conus perplexus and C. baccatus from Panama to demonstrate that these are two separate, similar but distinct, species.

Walter also showed how the Sperry IT computer, an IBM-compatible system purchased in 1987, was used to catalog the mollusk collection. He also exhibited and explained software and accessory equipment.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE OCTOBER MEETING

The October 9th meeting of the New York Shell Club was held in the Linder Theater of the American Museum of Natural History, and was attended by 45 members and visitors.

President Al Scarpetti introduced poet and artist/sculptor Chandler Davis of Westport, Connecticut, who provided the program for the day, and his associate Karen Santry. Karen then went to the lectern and, as a series of slide photos were shown on the screen, explained how they exemplified the inspiration that Mr. Davis has found in shells. The first was that of a starry sky, chosen because he "sees the universe in a shell." Other photos included a galaxy, the moon, a swirl of weather patterns seen by a satellite camera, the columella of a Busycon canaliculatum, and designs and architecture inspired by shells and other natural shapes. There were also photos of Mr. Davis's shell sculptures as displayed in Gucci's windows in New York, and of paintings commissioned by the Penn Petroleum Company — shells painted in heroic size on some of their oil tanks.

On the stage were several examples of Mr. Davis's shell sculptures, made of many layers of fiberglass over matrices of wood and screening. The largest was a rendition of Strombus gigas that measured

5 1/2 ft. by 5 1/2 ft. The coloring and the detail — even to adhering barnacles and areas of erosion — were perfect. The others, sized in scale to it, were also exquisitely executed: Conus marmoreus and Conus vitulinus, two Nautilus, Mercenaria mercenaria, Pecten irradians and Mytilus edulis. After the formal closing of the meeting Mr. Davis was kept busy answering questions about his work and accepting praise for the beauty and perfection of the examples of his work he had brought to exhibit.

The door prizes were a Murex nigrospinosus, won by Larry Potter, and a Haliotis scalaris, won by a visitor.

Al Scarpetti announced that a sale of shells from Veronica Johns' shop, Seashells Unlimited (now a part of malacological history), would be held at the Broadway Dance Studio in Queens on November 20. He also announced that Eli Horowitz would speak at the March meeting, and that Nick Katsaras will talk on Marginella at the May meeting.

Milton Werner, Recording Sec'y

DIVER'S LOG
SOUTH CAROLINA - AUGUST 20-24

by Charlotte Lloyd

This would be a shell collecting/spear fishing trip off Charleston, South Carolina. On previous trips I have often found that the water is clearer there than off Northeast Florida; in the Carolinas the Gulf Stream comes to within 35 miles of the coast, compared to 65 miles off our area. Within the clear, warm waters of the Gulf Stream you find many species you would expect to find in South Florida and the Caribbean. Long-spined sea urchins, hard corals, tropical fish, and shells are in relatively shallow water (85-110'). One would have to venture out to depths of 150' off Mayport to find some of these animals.

The drive from Jacksonville Beach to Georgetown took six hours and I arrived in time to help buy groceries and load the gear on our 46' boat, "Reef Raider II", that would be "home" for the next five days.

At 6:00 the next morning we (Vic, myself, my sons, Brian and Jimmy, and friend Dan Danciger) were headed out the channel to the open sea. Here we were put into perpetual motion, rocking, rolling, pitching and bucking - day and night - non-stop.

We reached 95' of water around 12:00 noon and Vic and Brian made the 1st dive. They came up with two grouper and four large (10-12 lb.) lobsters. They reported the water clear, 60' visibility and no thermocline (cold, dirty layer of water).

My 1st dive, 2:15 p.m., Thursday, August 20. Overcast day, 95' of water. visibility 60-70' (think what it would be if the sun was out)! On the way down, I see rocks with growth on them and head in that direction. Lots of tropical fish, bright colored sponges, and algae on reef. This is a pretty good area for shells; I spot several dead helmets, a large dead spiny oyster in good condition that I can't budge with my knife. I load my speargun and spear three small grouper which I place on my fish stringer. I look around the rocks and and find some typical Florida shells, such as Ceriths and a Chestnut Latirus, Leucozonia nassa, the same shell I collected in Tobago in June! I also found our Mayport "offshore Olive sp.", Atlantic Strawberry Cockle, Ravenel's Egg Cockle and a very large Turkey Wing which had its own mini ecosystem of coral, sponges, annelids, algae and barnacle attachments. Two 40 lb. barracudas cruise by, seemingly interested in what I'm doing - or is it my gold earrings? (Must remember to remove them before my next dive.) My dive buddy Dan joins me and we ascend. Twenty minutes on the bottom seems like five.

2nd dive, 5:45 p.m. This was a wreck dive. The vessel was a freighter that was converted into a sub chaser during the war; it went down in 1942. The wreck is pretty broken up and gives fish quite a few hiding places. It is also a sheller's paradise. A large dead Cymatium krebsii first catches my eye. It is in perfect condition and still has the periostracum. I also add a large perfect Murex florifer dilectus and several Coralliophila aberrans to my catch bag. Since I've given away all the old bottles I collected five years ago, I pick up two squatty brown beer bottles and two slim green bottles. The wreck is literally covered with these old bottles; it must have been carrying hundreds of cases of them. As always, it's an exciting dive.

3rd dive, 11:00 a.m. August 21 - 85' of water, barely beneath the surface I can spot the wreck on the bottom. It's an old wooden boat, not much left of it, some metal sticking out of the sand. A shrimper has lost his net on the wreck and the net is draped across the bow of the vessel. It was built with 8" brass nails and I find one on the sand and put it in my bag to bring up. I spear three small grouper, string them, and then start scratching around for shells. There are quite a few Pisania tincta, two nice Calliostoma euglyptum, one tarnish-pink and one lavender. I find an octopus den, the octopus can see me and has his tentacles curled back with the suckers toward me to protect himself. I see he also has a flame crab and a live Horse Conch in his grip, probably his next meal. I look toward the surface to get my bearings before going up. It is clear enough to see the outline of the boat on the surface. I ascend with a school of amberjack swirling around me for company; these large fish seem to enjoy a diver in the water with them.

The fellows make a dive on a reef and come back with stringers full of grouper. So - as part of the second team - Dan and I gear up, with plans to do the same. Someone forgot to tell the fish. By the time we get to the reef they are all hiding. I know because I find them under part of the ledge that has fallen in and created a dandy hiding place. I could shine my light under the area and stick my head and shoulders in and see twenty to thirty large groupers milling around. They knew they were safe. (This was dive No. 4.)

I have brought along an eight-inch aquarium net. Tomorrow I will try to do some hand dredging around the edges of rocks in the sand. It will help if we're in about 110' of water.

5th dive, Saturday. 110' of water, sandy bottom with many large rocks covered with algae. As soon as I start looking around I find Spondylus americanus. The ones on top of the rocks have shorter spines. I look for spiny oysters in crevices or on the underside of the small ledges. I find two close to each other; one is barely attached and comes off with merely a tug. The other one is really attached and after chipping and prying with my knife I realize I would have to tear it up to get it off the limestone. This is such a beautiful reef. The top of it has green, red, and brown algae attached, along with sponges, some hard corals and tropical fish. I find a small spotted moray eel living in a crevice with a large toadfish. As I fan the sand to try and uncover buried shells, sea bass and porgies are waiting to grab marine worms and other tasty morsels that I uncover. Vic and Brian join me and signal it's time to go up.

6th dive, Saturday 4:00 p.m. We are in 114' of water. On the way to the bottom the grouper come up in the water to meet me and dive partner Dan. This will be a spearfishing dive. I bring up five large grouper and a 15 lb. hogfish.

Sunday, August 23. The weather has taken a turn for the worse. Wind is blowing and seas are 8-10 feet. I have to hold on to stationary objects to move around the boat. It is not pleasant, I decide to skip the morning dive. I return to bunk.

7th dive, Sunday, 5:30 p.m. Seas have laid down somewhat, I decided to make the dive with Vic and Brian. It is a beautiful reef in 110' of water. I spear a hogfish and a grouper. I have brought the aquarium net and a large bag with me to try hand-dredging. However, it is not successful, the fine mesh of the net will not allow the sand and broken shell rubble to pass through. I fill the bag with shell rubble to check later for miniatures. When we come up the wind is blowing and the seas are choppy again.

While fishing at night, large squid (12-14") come up around the boat. They are attracted to the plankton in the water, attracted by our lights. However, the squid weren't beyond stealing bait if given the chance. An octopus also came up to the boat and was very aggressive in trying to get our bait before we could get it to the bottom. Brian, using bait and the 8" net, captured it so that we could have a closer look at it. He released it unharmed, even though the others were trying to convince him that octopus makes excellent bait.

At 9:30 p.m. that night Jimmy and Dan decided to make a night dive for the purpose of spearfishing in 115' of water. I would have gone with them if they were just going to sight-see (I'm now sorry I didn't.). They reported many strange sights: sea cucumbers 15" in length standing on end and weaving in the water like garden eels; purple sea slugs on the sand, that had wings and were also swimming in the water column (Sea Hares?); a strange orange fish with black dots that was blob-shaped (frog-fish?). I am really mad at myself for missing it!

Oh, Well - I guess it gives me something to look forward to next year, when again I plan to return to dive offshore of South Carolina.

Reprinted from The Shell-O-Gram 28(6) 1987
Publication of the Jacksonville Shell Club

A TIP FOR NOW

Maybe there are some who do not know how to preserve a fresh dead sea urchin or sand dollar, or a fragile fossil. Just make a rich mix of Elmer's Glue and water, and paint it on with a brush. When dry, it adds a lot of strength to these things and they are not so apt to break.

Nat'l Capital SC Newsletter, Issue 94

* * *** * *

I used Elmer's Glue, undiluted, to attach fallen spines to their sockets in a long dead pencil urchin, with success, and the repair is invisible.

D. Raeihle

SPINE STRUCTURE IN SPONDYLUS AMERICANUS

by John Root

Most people who have had much to do with Spondylus americanus Hermann, 1781, and that includes most South Florida shell collectors, have noted two distinct shell types among the Spondylus americanus they have seen. Typical shells, when in good condition, have long spines that reach well beyond the margin of the shell. In between the rows of long spines are short spines that look almost like fur. On the other end of the spectrum are shells without any long spines at all; the surface is entirely covered with short, close-set spines. These short-spined or furry types are usually found in great quantities in limited locations. My first experience with them was in a collection in Key West. They had come off a sunken Navy vessel that had been salvaged and put into dry dock. The whole ship had been literally covered with short-spined Spondylus. Before I got to Key West, some collectors had a field day, but when I was there, inevitable politics had put these "valuable" shells off-limits to the public. There was much speculation about a new species of Spondylus. If it wasn't a new species, why were they all alike?

There are several wrecks off the Palm Beach area with a similar, though more limited, covering of Spondylus. They were the short-spined type also. Now, a new question arose. Why are all wreck Spondylus the short-spined furry type? There was no doubt in my mind that they are all truly Spondylus americanus.

Recently, while cleaning some wreck Spondylus that I had accumulated, I recalled diving the Mizpah, one of the wrecks in the artificial reef off Singer Island. I was collecting Spondylus (legal at that time) and I remembered that there were few shells inside the wreck, but they were all long-spined types. Why were the Spondylus americanus on the outside of the wreck short-spined, and the ones inside long-spined? In a flash of inductive reasoning, I knew.

Over the years of diving and shell collecting, I have collected Spondylus from reefs, from rubble. I have gotten ones with beautiful spines, and ones as smooth as a billiard ball. Numerous live shells have gone into my aquariums where I have observed them as much as you can by looking. Have you ever observed a Spondylus? Do you know how he makes those long, beautiful spines? He does it with his mantle. At the time that it is being made, the spine is part of the margin of the shell. The mantle is extended outward in a feathery, fingerlike projection as it builds the spine underneath.

There is one distinct difference in the water where the short-spined Spondylus are found and most others are found — one word — CURRENT. The Mizpah is swept constantly by the strong Gulf Stream current. The Spondylus simply cannot hold that thin, spindly piece of mantle out in that swift ocean current. He does the best he can. The best is a short spine.

Featured as BEST OF THE NEWSLETTERS in
AMERICAN CONCHOLOGIST, Bulletin of the
Conchologists of America, Inc. 16(3):7
and originally appearing in SEAFARI,
publication of the Palm Beach County
Shell Club, in their June 1988 issue.

JANUARY 8, 1989 - 2 P.M. MID WINTER-SOCIAL

TRAVEL DIRECTIONS

Fred Cannon
292 Warren Street
Brooklyn, NY

Please telephone Fred in advance if you plan to attend; his phone number is 718-852-1765. Your message may be left on his machine.

BY SUBWAY -

Take the downtown S train to Brooklyn, using the front end of the train, to Bergen St.; take the left stair exit. You will be on the corner of Warren and Smith Streets; look for the Michaels furniture store (painted turquoise.) Walk up Warren Street about 3/4 of the way, to No. 292, on left side of street.

Take the #4 or #5 Lexington Ave. downtown train to Brooklyn and get off at BORO HALL. Walk to Court St., (away from the Court buildings,) walk up Court St. 8 or 9 blocks to Warren St. Turn left; No. 292 is on the right side about a quarter of the way down the block.

BY CAR -

Use the Brooklyn Bridge, getting off at the first Brooklyn exit on the right, which is Cadman Plaza. Bear to the left and turn left on Cadman Plaza, which turns into Court Street. Go past Atlantic Ave. 4 or 5 blocks, one block past Warren St., to Baltic St., turn left; go one block and turn left on Smith St; go one block and turn left on Warren St. to No. 292.

From Long Island, use the Brooklyn-Queens Expressway, and get off at the Atlantic Ave. exit. Bear right and turn right onto Atlantic Ave.; then turn right onto Court Street; turn left onto Baltic St. and follow directions above.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; Full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1988-9

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 11, 1988	February 12, 1989
October 9, 1988	March 12, 1989
November 13, 1988	April 9, 1989
December 11, 1988	May 7, 1989 **
January 8, 1989	June 11, 1989

** The May meeting has been changed to the first Sunday in May to avoid conflicting with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History (except when noted *). Present your NYSC membership card for admission to the Museum for the meeting.

MARCH 12, 1989, at 2:00 p.m.

ENDEMIC POPULATIONS, by Eli Horowitz.
(Lambis violacea, Conus gloriamaris, etc.)

APRIL 9, 1989

ANNUAL AUCTION AND SOCIAL to be held at Dorothy Jensen's
* Dance Studio in Astoria. (See PROGRAM NOTES, page 2, for details.)

* MAY 7, 1989

MARGINELLIDAE, by Nick Katsaras
PLEASE NOTE that this is the first Sunday in May.

JUNE 11, 1989

SHELLS IN ART THROUGH THE CENTURIES, by Gertrude H. Moller.
A slide presentation with commentary.

CONTENTS

		Page
Program Notes	Theta Lourbacos	2
Obituaries:		
Albert Taxson	Editor	2
Gilbert L. Voss	Editor	2
Veronica's Shells	Scarpetti & Raeihle	3
"Please Forward" (Ethelyn Woodlock)	Editor	3
What Shells In and Around Manhattan?	Bruce Einsohn	4
Highlights of the November Meeting	Anon	5
Highlights of the December Meeting	Milton Werner	5
Highlights of the January Meeting	Anon	6
The Underwater World (A symposium)	American Littoral Soc.	6
Shun the Frumious Bandersnatch	Marty Gill	7
Publications:		
Seashells of Long Island, New York	Review by Walter Sage	9
Classification of Living Mollusca Vaught, edited by Abbott & Boss	Review by Walter Sage	9
Revision of Subfamily Trophoninae by Roland Houart	Review by Walter Sage	10
Supplement to Catalog of Dealers' Prices, by Tom Rice	Review by Walter Sage	11
Common & Scientific Names NA Mollusks	Announcement	11
Prosobranch Phylogeny (-Ed: Ponder)	Announcement	12
The Banana Slug, by A. B. Harper	Announcement	12
The da Motta Collection	COA News Release	12
Founders of West Coast Conchology (III)	Joshua L. Baily, Jr.	13
Snailish Clams	Paula Mikkelsen	16
JAX Shell Show July 21-23	Invitation	18
Jacksonville Shell Club Offers Grant	JAX Scholarship Com.	18
Sanibel Enlists R. Tucker Abbott	News Release	19

PROGRAM NOTES

APRIL 9th, 1989: The annual Social/Auction will be held, as in past years, at Dorothy Jensen's Dance Studio in Astoria, Queens. The detailed announcement will be mailed to all members before the end of March, and will include travel instructions as well as information about time, place, bargain table, door prizes, refreshment table, et cetera. In addition, you will receive a list of shells to be auctioned, an outstanding collection, mostly from the estate of the late Veronica Parker Johns and were of the stock of her shop, Seashells Unlimited. We urge you now to set aside this date and notify friends and acquaintances of this outstanding opportunity to acquire some beautiful shells at bargain prices.

MAY 7th, 1989: Remember, this is the FIRST Sunday in May! Nick Katsaras, one of our Charter Members, will talk about *Marginella*, of which he has a fine collection.

JUNE 11th, 1989: Gertrude H. Moller of the Jacksonville Shell Club has presented her program, Shells in Art Through the Centuries, at the local art museum and the Jacksonville Shell Club.

Final note for the 1988-89 season: Election of officers for 1989-1990 will take place at the June 11th meeting. Any volunteers??? If you have any suggestions, please let one of the current officers know.

FALL 1989 PROGRAMS, beginning SEPTEMBER 10th, 1989: We must begin planning for our 1989-90 programs, and welcome suggestions for topics. Please let us know if you have a program ready or will have one for next season, or if you know of someone outside the Club who could give us an appropriate program.

Theta Lourbacos

ALBERT TAXSON

We were saddened to learn of the death of our friend and associate, Albert Taxson, who succumbed to a massive heart attack on January 8th, at age 80.

Albert Taxson was born November 19, 1908 in Toronto, Ontario, Canada, but spent all but his very early life in this country. He and his wife, Anne, joined the New York Shell Club in 1958 and were active, participating members until they retired to Florida about ten years ago. Unfortunately, he had been in declining health for the last few years.

His shell collection is notable for its precise data; it is going to the American Museum of Natural History.

Our deepest sympathy is extended to Anne. Friends may write to her at: 1300 N.E. 191st Street, Apt. 211, North Miami Beach, FL 33179.

DR

GILBERT L. VOSS

We regret to report the death of the eminent marine biologist, Dr. Gilbert L. Voss, who succumbed to cancer January 23rd at age 70.

Dr. Voss was born in Florida and, except for periods in the 1950's (when he was obtaining his doctorate at George Washington University, working at Woods Hole, Harvard's MCZ, and the Smithsonian), made his life in Florida, joining in 1961 the staff of the Rosentiel School of Marine and Atmospheric Sciences and becoming Chairman of their Division of Biology.

His primary interest was with the Cephalopoda, a subject on which he contributed many papers. However, of his many publications, the one probably most familiar to our members is his SEASHORE LIFE of Florida and the Caribbean (1971), evidence of his broad interest in the fauna of the seashore and written for all of us who love those beaches and shallows and wondered about the life-forms sharing the mollusks' habitats.

Our sincere sympathies are extended to his wife, Nancy.

DR

VERONICA'S SHELLS

In her book, "She Sells Sea Shells," Veronica Parker Johns wrote of her involvement with shells, of her shop, "Seashells Unlimited," and of the camaraderie that developed with other shell enthusiasts. The camaraderie was greater than she may have realized, as evidenced by the gentle handling and large amount of volunteer work of so many — first of all in emptying the shop, which was no small task. Then Dorothy Jensen somehow made room in her studio for storage until as executrix she could arrange for a sale toward settling the estate.

At the sale, held in November, there was much material that had been prepared for display by Dorothy, and by Karen and John Guinta; Sol Weiss gave of his time and skills and coordinated the sale; 'Mike' Werner, Walter Sage, and Al Scarpetti assisted wherever needed. To all these and many more who attended the sale, Veronica was "like family" and Al Scarpetti agreed that the atmosphere of that afternoon "was like a family affair." He reported that there was a wonderful selection of shells and jewelry and that there were many favorable comments from those who attended.

There was too much material for one sale, the balance of the shells will be offered at our April 9th auction and social, with proceeds to be shared by the New York Shell Club and the William E. Old Fund of the Department of Invertebrates of the American Museum of Natural History.

AS/DR

"PLEASE FORWARD"

A feature story in the St. Petersburg Times of November 30, 1988 was accompanied by a photograph of NYSC member Ethelyn Hurd Woodlock with her painting "Please Forward" — a trompe d'oeil composition of envelopes, a pair of spectacles, and a key — which she created in 1957. The painting has been accepted into the permanent collection of the National Museum of Women in the Arts in Washington, DC. We congratulate her on this latest of the numerous honors she has received from museums and private organizations.

Mrs. Woodlock lived for many years in Midland Park, New Jersey, where we all could appreciate her, her art work, and her shell collection. (Remember her famous facsimile of *Conus gloriamaris*?)

DR

WHAT SHELLS IN AND AROUND MANHATTAN?

The following inquiry was received in January from Timothy Shirley, 72 West 181st Street, Bronx, New York 10453:

> I'm seeking information on where I can collect the Unionidae shells in our area. I read a book called "The Shells of the New York City Area" and its author wrote that he found single valves of Anodonta cataracta in Central Park Lake. What about the Harlem, East, and lower Hudson Rivers? or Van Cortlandt Park Lake? Please, I would appreciate any information on any lake, creek, pond or river in our area where the Unionidae shells and mussels can be found. . . . . Thank you!

We considered Bruce Einsohn to be one well qualified to answer this inquiry, and upon our request he kindly responded with the following remarks:

> With regard to the request for information on the Unionidae of the New York City area, I have (from my own collecting experience) mostly negative evidence. I have concentrated my efforts in Manhattan where, outside of Central Park, there is but little fresh water. However, I present what little information I have:
>
> While things most certainly have changed since 1961, when Karl Jacobson and William K. Emerson published "Shells of the New York City Area," I am happy to report that, in certain cases at least, things are not as bleak as we sometimes think. In Manhattan alone I have personally collected nearly 65 species of land, freshwater, and marine shells. In Karl's book, under Gemma gemma, for example, he states: "(The species) was originally found in 1852 in the East River near Hell Gate, where we are sure no mollusks of any kind have lived for generations." Yet, Gemma gemma was quite common in dredgings that I had taken from this spot in 1984! Since then the city has stopped all untreated sewage from entering the waters surrounding Manhattan. It remains to be seen what effect this will have on the mollusk population. I hope to publish on my Manhattan collecting in the near future.
>
> To get to the Unionidae: I have found freshly dead double valves of Anodonta cataracta along the shore of the 72nd Street "rowboat lake" in Central Park in November 1983. Karl reported single valves from this same locality. This is the only lake in the Park in which I have found this species. Other lakes in the Park contain several species of Sphaeriidae.
>
> There are (at least in my experience) no Unionidae in the East, Harlem, or Hudson Rivers in the vicinity of Manhattan. I have not found them or any other fresh water species, either intertidally or by dredging. The salinity here is too high, and I suspect that the fish which host the larval forms are absent. The most common bivalve in these waters seems to be Mya arenaria. A recent paper by Strayer* records a number of the Unionidae from the Hudson River itself, but well north of New York City where presumably the salinity is less that 1 ppt, although the water is still tidal. This paper may be a useful reference to the original inquirer.

* (Strayer, David. 1987. Ecology & Zoogeography of the Freshwater Mollusks of the Hudson River Basin. Malacol. Rev. 20:1-68.)

With regard to the other localities in the original request, I have found no Unionidae in Van Cortlandt Park Lake or, for that matter, in the nearby lakes of Bronx Park, or the Bronx River itself. In truth, I have not looked very hard in those areas, although I did find some Sphaerium in the Bronx River north of the Botanical Gardens.

The foregoing largely exhausts my experience with this group. I hope it is useful.

Best regards — Bruce Einsohn

HIGHLIGHTS OF THE NOVEMBER MEETING

The program for the November 13th meeting consisted of brief talks by members who had brought with them shells that held some special interest for them. The first speaker was Nick Katsaras, who displayed a selection of rare Conus and Cypraea and outlined the history of their reception by collectors.

Ed Cowles called his presentation "Murder Most Foul." He had brought two Fasciolaria tulipa, recalling the day when he had rented a rowboat in Marathon, in the Florida Keys, and had gone exploring among mangrove roots. Here he found the two shells, together. The larger one was vigorously alive, and its proboscis was in the shell of the smaller. Nothing remained of the latter except the shell and the operculum.

Allen Aigen displayed and described three groups of Siphonaria that he had collected in Israel.

Al Scarpetti had brought a selection of Conus in the textile group which he identified and discussed.

HIGHLIGHTS OF THE DECEMBER MEETING

Noting that this was the 40th anniversary meeting of the New York Shell Club, President Al Scarpetti proceeded immediately to the introduction of the speaker for the occasion, Dr. R. Tucker Abbott.

Dr. Abbott's subject was early shell books published in the United States. He noted that in those times books on shells were all produced by such people as doctors, ministers, geologists and others whose primary professions were not devoted to the study of mollusks. He had photographed title pages and other selected pages of all the books he commented on.

He also spoke on the more recent history of conchology in this country, and the development of the popular literature, noting that until World War II generated a new interest in shells there were few modern books on the subject. Not very many years ago, he pointed out, there was no malacologist on the staff of the American Museum, and Drs. William Clench and Ruth Turner occasionally came to the Museum from Cambridge to do some shell curating. Malacology got more attention here when the Museum acquired the Calvert collection.

Dr. Abbott also recalled the days when his own paperback, "How to Know the American Marine Shells," had been on the shelves for a while and his royalties were showing an expected decline. But suddenly they shot up again for a time. He was surprised enough to ask his publisher for enlightenment, and learned that orders had been pouring in from Lebanon. The busy military types over there had obviously learned of this title and misinterpreted it.

Dr. Abbott concluded by leading an informal discussion of conservation.

Historian Nick Katsaras observed the Club's 40th anniversary by noting that we have had 19 presidents. He read the list of names, and showed a slide on which many of them appear. The occasion was also marked by the reading of a resolution conferring Honorary Life Membership on members Ed Cowles, Dr. Walter Jacobs, Harold Feinberg, Nick Katsaras and Sam Freed.

The door prizes were a _Scaphella dubia_, won by John Cole, a _Patella granatina_, won by Chessi Bugosa, a _Strombus listeri_, won by Michelle Opler, and a _Tibia fusus_, won by Henry Gordon. Henry generously turned his prize over to a younger member, Jeffrey Osborn.

Milton Werner, Recording Sec'y

HIGHLIGHTS OF THE JANUARY MEETING

The January 8th meeting of the New York Shell Club was an informal social gathering, held at the home of Fred Cannon.

As he has done in the past, Fred invited members to be his guests for an afternoon of chatting, snacking, ogling his magnificent collection of shells, and enjoying the Christmas decorations throughout his Brooklyn brownstone home.

Fred likes his Christmas trees live, and he picks them to fit – snugly – the characteristically tall space in his house. This year he had two. The upstairs one was decked with handmade ornaments, and the first-floor tree with hundreds of every description, most of them antique. The upstairs tree had only 800 lights, but the other rather made up for it, with 1,500.

A special feature of this get-together, in the sipping and munching department, was a layer cake baked and decorated by the host. He had learned that the following day would mark a most significant anniversary – Nick Katsaras's 80th birthday – and decided that nothing less than a baked offering would suffice for the occasion. The gesture delighted Nick and everyone else present.

THE UNDERWATER WORLD

(At the American Museum March 15)

The American Littoral Society invites you to attend their 24th "Your Future in the Sea" symposium, an evening of films, slides and talk about the underwater world:

EUGENIE CLARK will cover many facets of her underwater work on deepsea sharks, plus marine life in shallower waters, with films and slides. HENRY KEATTS, diver, zoologist, and historian, will catalogue with brilliant underwater photography the legacy of shipwrecks on the New England coast. Plus a selected short film by ROBIN LEHMAN. Informal program; time for questions and answers.

In the auditorium of the AMNH, Wednesday, March 15, 7:30-9:30 p.m. Admission: $8.00 per person. Inquiries: ALS phone (201) 291-0055.

SHUN THE FRUMIOUS BANDERSNATCH

by Marty Gill

> "Beware the Jabberwock, my son!
> The jaws that bite, the claws
> that catch!
> Beware the Jubjub bird and shun
> The Frumious Bandersnatch!"
>
> — Lewis Carroll, in
> Through the Looking Glass

The sage advice thus imparted by the doting father to his "beamish boy" reflects the obvious wisdom of treating wild things with a sensible respect. Excited as we all might become when encountering a cuddlesome warm-blooded creature, few of us would be so foolish as to try to lay hands on it. Instead, we would exercise that better part of valor which instructs us that wildlife has generally evolved unpleasant methods of repelling the intrusions of large, threatening and unwanted guests such as Homo sapiens.

So, it seems strange that otherwise intelligent and careful people fail to extend the same respect to marine life that they render to denizens of the forest. Yet, on several shelling trips, I have noted that folks who would never intrude their hand into a hollow tree in pursuit of a raccoon will happily thrust said member into a hole wherein an octopus has just beaten a hasty retreat. At least three members of our club have cheerfully recited the odyssey of their adventures "playing" with the "cute" octopi that occupy the shallows of the Florida Keys. In fact, one club member, an experienced diver, has casually informed me of the complete harmlessness of these creatures. Such a wistfully Disneyesque view of wildlife can only serve to harm both the resident beastie and the human visitor.

With this in mind, I would like to call the readers' attention to an article recently appearing in The Nautilus. In "Bite by Octopus joubini: A Case Report," Donald McKinstry, of the University of Pennsylvania, cites three cases of bites by the small Florida octopus. The key feature in all three cases is the effect of the venom most of us fail to realize is a very normal part of the Octopod's arsenal.

In the first case, McKinstry cites his own 12-year-old son, bitten on the hand while visiting Sanibel Island. He describes a painful, oozing wound that required more than three months to heal. The octopus in question was caught, and proved to be sub-adult. The author suggests that this may explain the relative mildness of the injury.

Also on Sanibel, the second case involved a medical doctor, bitten on the hand. The victim described severe burning pain, followed by swelling and hardness, eventually throughout the hand. These symptoms subsided over a period of about two months. A mild fever was also recorded.

The third incident took place off Egmont Key, and involved a research worker. Pain was reported to have spread all the way up the affected arm. This case seems to be the most serious, as the victim reported headache, nausea, and fever, too. This time the wound healed in a little under two months.

In a recent article in Hawaiian Shell News, Janet Voight, of the University of Arizona, discussed octopus venom as a means of predation. She explains that the venom is stored in the salivary glands, ready for use. Rather than being injected, as is the case with Conus species, it is exuded over a wound made by the beak, or even the radula. The poison is a neurotoxic paralytic chemical and is even effective when spread in the waters around the prey. One species of octopus, the Australian "blue ringer," is known to be lethal to humans. Like other organic paralytic poisons, this venom causes the diaphragm to cease activity and the victim dies of suffocation.

Remaining on the molluscan path, but switching from Cephalopoda to Gastropoda, one would also do well to heed the precautionary implications of two articles recently published in Hawaiian Shell News regarding the venomous qualities of Oliva species:

In the December 1987 issue, Dr. E. Alison Kay, of the University of Hawaii, a well-known malacological author, reports of five deaths in Malaysia caused by eating cooked specimens of Oliva vidua fulminans. The shellfish were eaten by a family of eight. While the adults were only sickened, five children died, exhibiting symptoms similar to severe cases of neurotoxic poisoning from Conus stings.

In a follow-up article, in May 1988, Jeremy Wood-Anderson of Pakistan expressed surprise that the venomous qualities of Oliva had not been better-known in Malaysia. He indicated that Pakistani fishermen were conversant with the poisonous capacity of various Olive species, and introduced a new dimension of which shellers should make note. Olive venom, because it contains a highly acidic element, can be absorbed through the skin when exuded into the water. He cites the case of a local fisherman who was adversely affected in this manner, the entire length of one arm, including the lymph nodes. The venom, exuded in an "ink" is not injected by radular stings. This "ink" has a counterpart in Cymatium and Murex species (yes, the fabled "Royal Purple" dyes of the Phoenicians). It seems that the venom is unlikely to be present in these latter families, as they are safe to eat.

The message in these articles seems clear: Avoid handling marine organisms if you don't need to — only touch what you have a purpose in touching. When you handle them, care and respect are in order — and GLOVES. And, oh yes, PLEASE don't EAT the olives — at least the zoological kind.

Literature cited:

Kay, E. Alison. 1987 (December). An Olive That Killed. Hawaiian Shell News XXXV(12):8.

McKinstry, Donald M. 1988 (August). Bite by Octopus joubini: A Case Report. The Nautilus 102(3):127-8.

Voight, Janet R. 1988 (May). Predation by Octopuses: the Arsenal of Attack. Hawaiian Shell News XXXVI(5):1.

Wood-Anderson, Jeremy A. 1988 (May). Poisonous Olives. Hawaiian Shell News XXXVI(5):5.

Reprinted from THE MOLLUSK 26(12):6-7,
December 1988. Publication
of the Greater Miami Shell Club.

PUBLICATIONS

REVIEWS:

SEASHELLS OF LONG ISLAND, NEW YORK

Prepared and printed by the Long Island Shell Club. 1988. 209 pp., 111 black & white photos. Price $14.95, discount to members.

This excellent field guide is testimony to the dedication of a group of knowledgeable shell collectors who have pooled their resources and produced an illustrated identification guide to approximately 120 shallow-water, marine, shell-bearing mollusks of Long Island, New York. This work covers all of geographic Long Island, from New York Harbor east to Montauk and Orient Points. Included are descriptions of each species, information pertaining to habits and habitats, geographical range, and notes on the availability of each species as collectible shells. Information covers specimens and field notes from 1960 to the present.

The format contains a table of contents, preface, introduction, statement about the Long Island Shell Club, acknowledgements, sections on the use of the book and on identification and terminology, a key to collecting localities on Long Island, a treatment of faunal relationships, glossary, references, and index. In addition to the detailed species accounts, Appendix I contains a systematic checklist of known marine mollusks of the area, including extralimital species, and Appendix II covers marine mollusks reported from Long Island based on unverified or questionable records. Thus, this book documents and critically evaluates the status of all species that live, have occurred accidentally, or have been reported in all of Long Island's waters to the edge of the continental shelf.

The species accounts are arranged under families and include scientific name with author and date, common name, general range, local distribution, description, remarks, and a photo that allows for identification of specimens in the field. This book stands as a worthy tribute to all who were involved in all phases of its production, and is a reliable, usable complement to previous works on the molluscan fauna of this area. The members of the Long Island Shell Club can be justly proud of this effort and are to be commended for setting a standard that other shell clubs and individuals would do well to emulate.

Walter E. Sage

[The price of SEASHELLS OF LONG ISLAND is $14.95 postpaid. (New York State residents, please add appropriate sales tax.) Send check or money order payable to Long Island Shell Club to Jack Odenwald, 426 Hunt Lane, Manhasset, New York 11030.]

A CLASSIFICATION OF THE LIVING MOLLUSCA

Assembled by Kay Cunningham Vaught. xii + 189 pp., 1989. Edited by R. Tucker Abbott and Kenneth J. Boss. Plastic comb binding, $17.00; hardback, library binding, $21.00.

Several years ago this author privately published an earlier version of this work, then called the "Outline". Now, after several years of carefully searching the reams of molluscan literature available, Kay Vaught has presented us with a "state-of-the-art" compilation of supraspecific names in the Mollusca. The author has done the best job possible of providing a systematic listing of family and generic names, with the details of classification often corroborated by the top specialists in particular groups of mollusks. This enormous task has resulted in a volume of nearly 200 pages, and taking into account over 15,000 named taxa, of which approximately 10,000 are considered to be valid, usable names (the remainder are now considered synonyms).

In addition to introductory explanations, the volume includes acknowledgments, systematic arrangement, the classification, and an index to all names included. With a work of such scope, it is important to remember three points: first, read the explanations to be able to use this book to best advantage; second, there are bound to be minor errors in an effort of such magnitude; third, there will also be omissions and new names to be entered, so please contact the compiler with any data that you might have to offer. There will also be differences of opinion on the systematic placement of certain taxa, and in the text there are often comments to the placement of some names.

The compiler, those who have assisted her in any way, and the editors deserve the appreciation of both malacologists and amateur collectors for this carefully prepared work that will soon become indispensable to us all. Many smaller universities, museums, and others involved with malacological collections and their proper curation will find this work their first and foremost source of information on the supraspecific taxa of the Phylum Mollusca. This work shows just what a dedicated student of malacology can accomplish given the proper guidance and assistance. And, last of all, this book is priced so reasonably that all who need it can make use of it immediately.

Walter E. Sage

REVISION OF THE SUBFAMILY TROPHONINAE (MOLLUSCA: GASTROPODA: MURICIDAE) IN SOUTH AFRICA, WITH DESCRIPTIONS OF FOUR NEW SPECIES

By Roland Houart. APEX 2(2):25-58, 56 figures. 1987. 250 Belgian francs plus postage, available from the author.

In his continuing series of new species descriptions and supraspecific revisionary papers on the molluscan family Muricidae, Houart recognizes three genera of Trophoninae as occurring in Southern Africa - Trophon Montfort, 1810, with eight species; Apixystus Iredale, with two species; and Afritrophon Tomlin, 1947, with four species. These fourteen species are discussed in detail, with Trophon barnardi, Apixystus kilburni and A. transkeiensis, members of a genus hitherto believed to be restricted to Australian waters, and Afritrophon inglorius described as new to science. Also mentioned are several taxa not now considered to be members of the Trophoninae and three specimens too juvenile or imperfect to be determined as to species. Excellent figures of each species, many which are less than 15 mm in maximum size, are provided, as are drawings of protoconchs and distributional maps. The author is to be commended for continuing to provide quality contributions to our knowledge of the Muricidae.

Additional new species of Muricidae have been described recently by Houart in four papers:

Bulletin du Museum National d'Histoire Naturelle, Paris, 4th series, 8(4):757-767, 1986. Pterynotus (P.) richeri, to 31 mm, Nova Seamount, Coral Sea, 320 meters depth. Muricopsis (M) spiculus, to 12 mm, Chesterfield-Bellona Plateau, Coral Sea, 30 meters depth. Muricopsis (Murexsul) ianlochi, to 37 mm, Taupo Seamount, New South Wales, Australia, to 164 meters depth.

Venus (Japanese Journal of Malacology) 45(4):202-210, 1987. Aspella media, to 17.8 mm, Ouen Island to Prony Bay, New Caledonia, 59-62 meters depth. Maculotriton ingens, to 13.5 mm, between Ouen Island and Prony Bay, New Caledonia, to 155 meters depth. Typhis (Typhinellus) carolinae, to 20.5 mm, Grand Récif Sud, New Caledonia, to 78 meters depth. Typhis (Talityphis) neocaledonicus, to 18 mm, Grand Récif Sud, New Caledonia, 40-50 meters depth.

Publicacoes Ocasionais da Sociedade Portuguesa de Malacologia 11, 1988. Typhisopsis claydoni, 18.5 mm, Port Hedland, Western Australia, 12 meters depth.

The Veliger 32(1):60-63, 1989. Chicoreus fosterorum, to 51 mm, Pondoland, Transkei, South Africa, to 50 meters depth. Chicoreus zululandensis, to 34.5 mm, North Zululand, South Africa, to 68 meters depth.

Walter E. Sage

SUPPLEMENT TO THE NINTH EDITION OF A CATALOG OF DEALERS' PRICES FOR MARINE SHELLS

By Tom Rice. Fall, 1988. 56 pp., paper, 5 1/2" x 8 1/2". Price $3.95. Available from the compiler, P.O. Box 219, Port Gamble, Washington 98364.

This supplement covers the families Conidae, Cypraeidae, Muricidae, and Volutidae, and contains listings gleaned from retail sales lists of United States mail order dealers over the period from November 1987 to September 1988. All data here provided are exactly as transferred from the various price lists consulted by the compiler. Misspellings appear to be of minor consequence. Names are listed alphabetically by species within each family; information includes author and date of publication, locality, quality indicators (Fine, Fine+, Gem - not verified by compiler), size, and price. For the families covered, addenda denote species, subspecies, or forms that have appeared in earlier editions of this catalog but which have not been offered by the surveyed dealers in the past year.

This supplement offers an excellent service which should prove valuable to the informed collector. It is important to note that the compiler is not responsible for the validity of a listed taxon and, as always, the user of this listing bears the responsibility of verifying the stated facts.

Walter E. Sage

PUBLICATION ANNOUNCEMENTS:

COMMON AND SCIENTIFIC NAMES OF AQUATIC INVERTEBRATES FROM THE UNITED STATES AND CANADA - MOLLUSKS

American Fisheries Society Special Publication 16, 1988. Compiled by members of the malacological community in cooperation with major malacological organizations, this is the new standard of nomenclature for aquatic mollusks of North America. ISBN 0-913235-47-4 (cloth); ISBN 0-913235-48-2 (paper), 277 pages + 12 color plates, ISSN 0097-0638. Price: US $30.00 (cloth), $24.00 (paper), from American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, Maryland 20814-2199.

PROSOBRANCH PHYLOGENY

W. F. Ponder, Editor. Malacological Review, Supplement 4, 1988. Proceedings of a Symposium held at the Ninth International Malacological Congress, Edinburgh, Scotland, 31 August - 6 September, 1986. Hardbound, approximately 360 pages. US $48.00, from Malacological Review, P.O. Box 3037, Ann Arbor, Michigan 48106.

THE BANANA SLUG — A Close Look at a Giant Forest Slug of Western North America.

by Alice Bryant Harper. 8 1/2" x 5 1/2", 32 pp., 24 color photographs, drawings and range maps. ISBN 0-962128-0-0. Price $8.40 to California residents includes tax and postage; $7.95 outside California includes domestic postage. Bay Leaves Press, 7000 Soquel Drive, no. 310, Aptos, California 95003.

From Publishers' Announcements

[In May 1986 the University of California-Santa Cruz officially adopted the Banana Slug (Ariolimax columbianus) as its mascot after a 5-year campaign by students. In August 1988 Governor Deukmejian vetoed a bill introduced on behalf of the Redwood Campfire Kids to make the slug the official state mollusk, as "It is not representative of the international reputation California enjoys." ! (-Ed.)]

THE da MOTTA COLLECTION

Conchologist of America member A. J. (Bob) da Motta, who has been a member of this organization since its beginnings in 1973, has issued a statement regarding the disposition of his collection which is here summarized under his direction: "I take much pleasure in announcing that the discussions with the Staatliche Museum fuer Naturkunde in Stuttgart (West Germany), have now successfully resulted in their acquisition of my Conidae and Olividae collections on terms which have fulfilled all the requirements to our complete and mutual satisfaction. (The museum) is conveniently located in Central Europe and is accessible by air, rail, or road. The curator is a malacologist with an eye for the esthetic as well as scientific interest in the Conidae.

"My plans for the future will be to continue with new acquisitions to add to the collection. At 75, one never knows what fate may suddenly have in store, hence the need to ensure that the fruits of my 20-year collecting efforts will be preserved intact. The study material can now be passed on to others to undertake what remains a great deal still to be done. The Museum will welcome all visitors as soon as an announcement can be made that the collection has been curated and is ready for viewing."

We applaud this decision and wish Bob continued good health and success in his further endeavors.

COA News Release
Walter E. Sage

FOREWORD: We present the third installment of the talk by Joshua Baily read before the San Diego Shell Club November 27th, 1933 and published in the May 1988 issue of Shells and Sea Life by Sally and Steve Long, 1701 Hyland Street, Bayside, California 95524-9302. The reprint is to be continued in future issues of these NOTES. See NYSC NOTES No§ 308 and 309 for the first installments.

FOUNDERS OF WEST COAST CONCHOLOGY (III)

Joshua L. Baily, Jr.

The first attempt to build a transcontinental railroad took place in the early eighteen-fifties. That this road never materialized was not the fault of the committee appointed to select a route, for its report, published in 1855 in thirteen bulky volumes, constitutes perhaps the most complete scientific survey ever undertaken of a similar portion of the earth's surface. The surveyors did not content themselves with running levels and transits and base lines and meridians, but produced a remarkable treatise covering the entire mineralogy, botany, and zoology of the Pacific slope of the United States. Even anthropology was represented by a dictionary of languages of several Indian tribes whose lands were traversed by the proposed right of way.

That part of the report covering the paleontology of the route came from the pen of Timothy Abbott Conrad, a native of New Jersey, who thus became the first writer to publish anything on the fossils of the coast. The following year, 1856, Dr. John B. Trask of San Francisco became the first resident of the state to take up the study of shells scientifically. A few years previously, in 1854, he had been one of eight enthusiasts to unite in founding the California Academy of Sciences, the oldest scientific institution of any kind west of the Mississippi.

The great difficulty in preparing such a summary as this lies not in deciding what to include, but what to omit. Lack of time precludes more than the mere mention of the names of such American writers as Jewett, Gabb, Lea, and Gould, or the Englishmen Sowerby, Gray, Leach, and Reeve, of the Frenchman Deshayes or the Russian Middendorff. But there is one English writer whose researches on the conchology of the west coast are so voluminous that they must be mentioned in detail. This man is of course Dr. Phillip P. Carpenter, who described more species of mollusks from the coast that were known previous to his time.

Carpenter began his career as a minister of the gospel with a social vision. In his early days he established the "Oberlin Press" for the purpose of bringing education and employment to the youth of the laboring class. Later he undertook a crusade against vice and crime and the unsanitary conditions that bred them, and he became an apostle of ventilation and sanitation and temperance; and when the English cotton mills were forced to close at the time of the American Civil War he became a soap box orator and espoused the anti-slavery cause. On one occasion his house was burglarized, and the following day he inserted an advertisement in the papers forgiving the offender and inviting him to call and get better acquainted.

In about 1850 the British Museum came into possession of a collection of shells from the Gulf of California made by Frederick Reigen, the Belgian consul at Mazatlan, and Dr. John E. Gray, the president of that institution, prevailed upon Carpenter to undertake a careful examination of the material. C. B. Adams had already published a catalog of Panama, and inspired by this Carpenter undertook to prepare a similar list for the Gulf. The "Mazatlan Catalog" was such a success that a few years later the British Association for the Advancement of Science delegated him to report on the molluscs of the west coast of North America. This involved an examination of every collection of west coast shells made up to this time, and among them that of Thomas Nuttall was the most important, but the most interesting was that made by a Hungarian collector by the peculiar name of Xantus.

This latter had been a commissioned officer in the ill-fated revolutionary army of Louis Kossuth, and when the latter failed in his attempt to free his country of Austrian domination, both men went into exile. Xantus came to the United States, became interested first in archaeology, and in the gravels of the Delaware terraces above Trenton discovered the first pre-glacial shards in America. These were sent to the National Museum at Budapest, where they remained forgotten and covered with dust for well over half a century.

Xantus seems to have been one of these universal geniuses to whom no branch of natural science is without interest. Among the animals which bear his name are birds, lizards, beetles, and crabs. And his interest extended to shells as well. The opportunity to collect came when he was appointed by the Coast and Geodetic Survey to make observations at Cape San Lucas, at the southern extremity of Lower California. It has already been pointed out that at this strategic point two faunas come together, owing to the difference in water temperature on each side of the cape. During the three years he was stationed here he assembled about thirty packing boxes of dry and alcoholic material. When his term of service expired, the French had already begun the invasion of Mexico, with the intention of putting Maximillian on the throne of Iturbide. The port of Manzanillo, from which Xantus expected to sail, was being blockaded by the French fleet, and it was necessary for Xantus to slip through the blockade at night in a rowboat, which he did successfully, and was picked up by a passenger boat on the open ocean the next day. Of course, he could not take his collections with him. These he stored in La Paz, and eventually Carpenter obtained them, and after examining them he disposed of them in accordance with the wishes of the collector, dividing them between the National Museums at Washington and Budapest. Carpenter's report appeared in 1856 but it contained errors and a new and enlarged edition appeared in 1864, after which it was reprinted by the Smithsonian Institution.

It is a well-known fact that there are two kinds of conchologists - the Splitters and the Lumpers. A Splitter is one who divides more minutely than you think proper, and a Lumper is one who does not divide minutely enough. These are not the names that they apply to themselves, but the names that they apply to each other. It is also in the preparation of Carpenter's reports it comes with something of a shock to realize that the nearest he ever got to the Pacific was probably Montreal, when a member of the faculty of McGill University. All the specimens which he had to examine in identifying old species or diagnosticating new ones were collected by other people.

The first man to collect shells on the Channel Islands was Dr.

Wesley Newcomb. These islands have had an interesting geological history. The coast has oscillated between two extreme levels several times, so that at the time of highest elevation the islands were part of the main land, and at the time of greatest depression Mt. Soledad and Grossmont were completely submerged, and Black Mountain, Cowles Mountain, Mt. Helix, and Mt. San Miguel were islands. In the Pliocene period southern California was covered by a tropical jungle of which the palm trees and the wild bamboo on the west side of the desert are relicts. Then in the Pleistocene the climate grew cooler and the polar ice cap came as far south as the Columbia River. The islands which were formerly connected with the mainland and therefore had a similar flora and fauna began to sink. As the climate grew colder, the inhabitants of the islands had to modify themselves to fit the new environment or become extinct. The inhabitants on the mainland had not only to do this, but also to compete with an influx of invaders driven south by the advancing ice. Thus the modern inhabitants of the islands are the modified descendents of the primitive population, while those of the main land show a large proportion of exotic forms.

Among the primitive molluscs found on the islands is a peculiar slug called Binneya notabilis in which the shell is greatly reduced and resembles an abalone shell in form without the holes. The genus Micrarionta is also represented by a multiplicity of species quite unlike those of the mainland. And of those on the mainland the subgenus from west of the mountains is altogether unlike those from the desert. Presumably these were all alike during the Pliocene.

Dr. Newcomb assembled a large collection from the west coast, as well as from the islands of the south sea, which he eventually sold to Cornell University, and of which he remained the custodian for many years.

Dr. Newcomb was a physician by occupation. On one occasion he was called to attend a man in Oakland who was suffering from smallpox. He turned out to be a resident of San Diego by the name of Henry Hemphill, a bricklayer by trade, and it was he who built the Horton House, the oldest hotel in San Diego. But he only worked at his trade long enough to finance a prospecting trip into the wilds of Utah or Idaho, where he would remain until his supplies were exhausted, when he would return to San Diego and take up his work again. There is no record that he ever found any ore. It was on such a trip that he contracted the smallpox. When Dr. Newcomb found out what his occupation was, he began to talk shells with him, with the result that as Mr. Hemphill recovered from one fever he contracted another that was incurable, and he spent practically all the rest of his life hunting the elusive snail, not only on the coast but in Kentucky, Tennessee, and the states that border the Gulf of Mexico. At his death he had assembled the largest quantity of shells that had ever been brought together by one man.

The first man to attempt to prepare a list of all species of molluscs found west of the Rocky Mountains was Dr. John G. Cooper of Hayward, who simply copied Carpenter's list of the marine forms, but increased Carpenter's list by the addition of 184 species of shells from land and fresh water, which in itself is a tremendous piece of work. This list has been the basis of all systematic work of a faunal nature done since.

(To be concluded.)

SNAILISH CLAMS

by Paula Mikkelsen

[Paula Mikkelsen is Curator of the Indian River Museum, Fort Pierce, Florida. She is currently Secretary of the American Malacological Union and Editor of their Newsletter. She is the 1988 recipient of the National Capital Shell Club's scholarship, and has submitted the following article about the work that she is doing:]

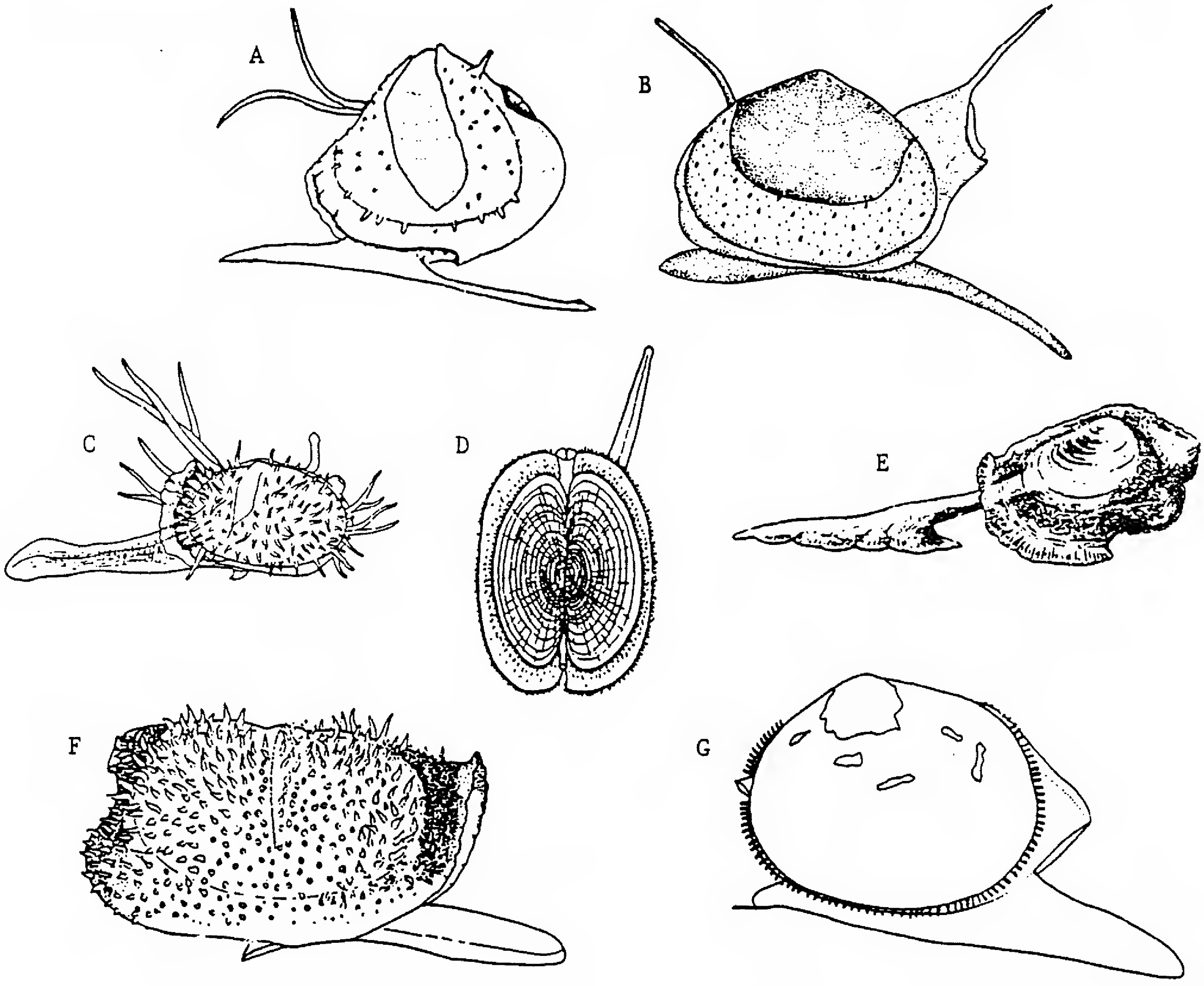
Most shell collectors enjoy observing living mollusks doing what they do naturally – crawling around, feeding, laying eggs and otherwise "behaving molluscan." To most readers, this sentence has likely conjured up visions of one particular kind of mollusk, namely a snail, perhaps something large and showy like a tulip shell or a conch. If I were to insist on an alternate subject – say, a clam – to watch would be reduced in most cases to less active endeavors like digging, siphoning and clamping shut.

However, all is not dull and unexciting in the world of bivalves. I have recently been studying a group whose members are very active – almost "snailishly" so – and extremely interesting from several viewpoints: ecologically, anatomically, as well as behaviorally. They belong to the superfamily Galeommatoidea, which includes the families Galeommatoidae, Lasaeidae (= Kellidae, Montacutidae), Leptonidae and Chlamydoconchidae. (The frequently-used names Leptonidae and Erycinacea refer to this same group.) Galeommatoideans unfortunately don't have common names, other than anglicized versions of the Latin genera – that is, we call a Mysella, a mysella, in the same way that we call a Pecten, a pecten. All species in this group are small in size, and most are well under an inch in length.

Ecologically, galeommatoideans usually live in association with other, often very specific, invertebrate species. They are not parasites, but rather commensals, deriving some sort of benefit from the larger "host" but not harming it. The benefit here is mostly a protective habitat, but also may include increased food supply from the host's feeding activities or respiratory currents. Some of the clams actually attach to the host with byssal threads, as in a species of Entovalva which lives under the scales of the scaleworm Lepidasthenia, or any of a number of species which nestle among the spines and tube feet of sea urchins and other echinoderms. Other species merely live with the host: Lasaea, on the east coast of Florida, lives nestled in the cracks and crevices of oyster bars; the five new species on which I am working attach themselves to the walls of the burrows of Lysiosquilla scabricauda, a 6"-10"-long mantis shrimp. In either case, attached or unattached, the clam occupies a very specialized habitat and is therefore highly dependent upon its host for survival.

Anatomically, galeommatiodeans are rather unique and definitely not "typical" clams. The shell is usually thin, white, and featureless, often with weak or rudimentary hinge teeth. It may be completely external or partially to wholly enveloped by the soft tissues of the mantle. Most fascinating are the numerous tentacles and papillae which ornament these mantle tissues, creating an appearance which has been called "nudibranch-like" by some recent workers. In my experience, unsupported by water in a sieve-full of moist sediment, these animals most closely resemble somebody's egg mass or, at times, mere blobs of indeterminate mucus! But when submerged, under close magnification, they are among the most exquisite of mollusks.

Illustrations of a few typical forms are reproduced here. Notice the pair of tentacles from what seems to be the "head region" of several of the clams (e.g., Scintilla, Ceratobornia). Indeed these tentacles receive nerves from "cephalic" ganglia although, like all other clams, a true head has been lost through evolutionary change.



(A) Ceratobornia (after Narchi, 1966).
(B) Rhamphidonta (after Bernard, 1975).
(C) Scintilla (after Arakawa, 1961).
(D) Ephippodonta (after Arakawa, 1960).
(E) Entovalva (after Ohshima, 1930).
(F) Scintilla (after Ponder, 1967).
(G) Arthritica (after Ponder, 1965).

Reproduction varies widely within this group: some species are hermaphroditic, possessing male and female structures in each animal; in others, males are reduced to dwarfs which live attached inside the larger, showy female. Most species retain their developing veliger larvae for a time, brooding them within the gill chambers to be released at a slightly more advanced stage.

The foot of galeommatoideans is also a very interesting feature. Although most are equiped with a more-or-less normal byssal gland for producing attachment threads, the typical bivalve digging foot is modified here into an organ adapted for active crawling. Some species (e.g., Entovalva, Ephippodonta) possess sucker-like devices to assist in locomotion. All species known so far are able to actively crawl about on this highly specialized foot. Coupled with the "head" tentacles and other papillae, these clams look more and more snailish even to those of us who know better! Why have they developed the ability to crawl with such proficiency? The answer is probably linked to their dependence on a specialized habitat and host; if one is dislodged from a desirable hole or crevice, it is convenient, perhaps essential, to be able to crawl back in again.

The Galeommatoidea is a relatively small group which deserves additional systematic study. Soft anatomy is known in many forms – no small accomplishment in malacology, where so many species are known only from shells. What remains to be done is a comparison of the various species, to better define the genera and to hopefully determine their relationships as families and to other groups of bivalves.

Reprinted from the newsletter of
The National Capital Shell Club,
Issue No. 95:8-10, Winter 1988.

JAX SHELL SHOW JULY 21-23

We have the announcement that the Jacksonville Shell Club will hold their 1989 (25th Anniversary) Shell Show at Jacksonville Beach's Flag Pavillion on Friday, Saturday and Sunday, July 21-23.

A note accompanying the announcement reads: "We would love to have any of our out-of-town friends exhibit (We can lend cases – – –). Write for exhibit applications to Mrs. Nellie Hawley, 11604 Surfwood Avenue, Jacksonville, Florida 32216. Phone: (904) 641-4606."

[For other shows and meetings, we refer you to NYSC NOTES No. 309, pages 9 and 10. (– Ed.)]

JACKSONVILLE SHELL CLUB OFFERS A GRANT-IN-AID

The Jacksonville Shell Club, Inc. is proud to announce the offering of a five hundred dollar grant-in-aid to a scholar who has demonstrated an interest and competence in natural science. The applicant must be enrolled in a program of study at an accredited U.S. institution at the college or post-graduate level. Special consideration will be given those applicants who are pursuing a curriculum in systematics, evolution, ecology, and malacology.

Applications will be accepted until May 1, 1989. Please request two letters of recommendation (one of which should be from the department head or advisor) and an academic transcript equivalent to the most recent year of study. These and the application itself should be sent to:

Harry Lee, M.D.
Scholarship Committee
Jacksonville Shell Club, Inc.
709 Lomax Street
Jacksonville, Florida 32204

The winner will be notified on or before June 1, 1989, at which time the award will be made.

Jacksonville Shell Club
December 27, 1988

[Applicants should make sure to include (along with the information requested above) full names, addresses, telephone numbers, their date of birth, citizenship, and previous awards.]

MORRIS KARL JACOBSON
SCHOLARSHIP FOR MOLLUSCAN STUDIES

The Astronaut Trail Shell Club's announcement of their annual research grants arrived too late for any entree. Given in memory of Morris Karl Jacobson, the grants are awarded to M.S. or Ph. D candidates studying the systematics or natural history of mollusks.

We will announce results as we receive them.

SANIBEL ENLISTS R. TUCKER ABBOTT

The board of trustees of Sanibel Island's Shell Museum and Research Foundation, Inc. has retained the services of Dr. R. Tucker Abbott for a two-year period as Founding Director of the proposed shell museum.

Announcing Dr. Abbott's affiliation with the project, Mrs. Betty Doan Johnson, chairperson, said, "The board is delighted to have available the experience, expertise and valuable counsel of such a prominent and universally recognized leader in the field of mollusks. Dr. Abbott's work on the shell museum will be instrumental in the establishment on Sanibel Island of one of the world's finest exhibit and educational facilities for everyone interested in shells."

Dr. Abbott's duties as Founding Director of the Shell Museum will be to help plan and design the facility. In addition to many exhibits, the new museum plans to maintain a computerized index to the world's popular and scientific literature and to establish a color-slide bank of photographs of type specimens, living animals and habitats, for students, writers and publishers.

Concerning the project, Dr. Abbott says, "It is highly appropriate that the people of Sanibel and Captiva Islands create a permanent museum to enlighten and inspire everyone to appreciate our natural heritage of shells. Through educational displays and activities we plan to share the wonders of our seas and actively promote awareness of the critical need for more thoughtful conservation and protection of the earth's environment."

From a News Release
of January 15, 1989

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

NANCY McTIERNAN
100 Remsen St., #5A
Brooklyn, N.Y. 11201
718-855-1659

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: **FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES**

Editor: **DOROTHY RAEIHLE**, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1988-9

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 11, 1988
October 9, 1988
November 13, 1988
December 11, 1988
January 8, 1989
February 12, 1989
March 12, 1989
April 9, 1989
May 7, 1989 **
June 11, 1989

** The May meeting has been changed to the first Sunday in May to avoid conflicting with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

NEW YORK SHELL CLUB NOTES No. 311 June 1989 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meeting.)

SUNDAY, JUNE 11, 1989, at 2:00 p.m.

SHELLS IN ART THROUGH THE CENTURIES, Gertrude H. Moller

Ms. Moller, a member of the Jacksonville Shell Club, has given this program at the local Art Museum as well as the Jacksonville Club. It is a slide presentation with commentary.

Also, election of officers for 1989-90; additional nominations from the floor will be accepted.

CONTENTS

		Page
Highlights of the February, March, and April Meetings	Milton Werner	2
In Appreciation	Theta Lourbacos	3
Annual Election, the Slate		3
Obituaries:		
Joseph C. Hayes	Editor	4
Renata Wittig Skinner	R. Tucker Abbott	4
Cernohorsky Collection of Miters to Florida Museum	Shell-O-Gram	5
Coming Events:		
Identification Day at AMNH	Natural History	5
COA Meeting, San Diego	COA Announcement	5
AMU-WSM Meeting, Los Angeles	AMU Announcement	6
Shell Show Schedule	Donald Dan	6
Review:		
Common and Scientific Names — Mollusks of US and Canada, publication of American Fisheries Soc.	Walter Sage	7
Notes on a Name (Quahog)	Dorothy Raeihle	8
Founders of West Coast Conchology	Joshua L. Baily, Jr.	9
Requests for Exchange	J. P. Vidal, Paris V. Borodin, Riga	12
In the Path of the Stream (Lopha frons)	Dorothy Raeihle	13
The Ecology of a Pristine Creek in Western New York	Kathy Schneider	14
New Additions to NYSC Library	Editor	16
Of the 'Red Tide' and 'Brown' Tide	Dorothy Raeihle	17

HIGHLIGHTS OF THE FEBRUARY MEETING

Treasurer Theta Lourbacos noted that the supply of Club pins had been sold out; it was moved and the motion carried that a new supply be ordered. Theta also drew attention to the publications that the Club subscribes to, for those who might find them interesting.

New member Jeff Osborn was introduced.

The speaker was Margaret Prall, whose subject was "Where Shells Live." The many underwater localities that her camera had caught are in both the Caribbean and the New York/New Jersey area, from the shore lines to 100 feet depth. Although she is not herself a shell collector, Nick Katsaras declared that she would be a good one.

The door prizes were a Cymbiolacca peristicta, won by Rae Varga, a Lambis digitata, won by Harvey Frajlich, and a Cyrtopleura costata, won by Anne Whiteman.

HIGHLIGHTS OF THE MARCH MEETING

The early part of the meeting was taken up with discussion of final details of the April auction/social. Hank Devine and Milton Werner volunteered to prepare the studio on the preceding day ('Mike' is an old hand at this. -Ed.) and Nancy McTiernan turned over to them a shopping list that she had prepared.

The speaker was Eli Horowitz, whose topic was the typical shells of various provinces. He had made up a list of the shells he showed on the screen, copies of which he distributed along with a world map of the molluscan provinces. He drew comparisons between shells that are similar but live in provinces distant from each other, and commented on the factors that have dictated present distributions.

The door prizes were an Argonauta argo, won by Al Scarpetti, a Haliotis iris, won by Nancy McTiernan, and a Voluta nobilis, won by Milton Werner.

HIGHLIGHTS OF THE APRIL MEETING

The 376th meeting of the New York Shell Club was an annual social and auction event, held at Dorothy Jensen's Broadway Dance Studio in Astoria, Queens. The doors opened at 11:00 a.m. Sunday, April 9th, and auctioneer Sol Weiss started the sale at 1:52 p.m., noting that the proceeds would be shared by the Club and the William E. Old Fund of the Department of Invertebrates of the American Museum of Natural History.

Among the shell-related items on the table were a shell picture in needlepoint made and donated by Arline Reimann that brought $10, a copy of Veronica John's book, "She Sells Sea Shells," $20, and two guache drawings by President Al Scarpetti - flowers, $45 and shorebird decoys, $75.

Most of the shells on hand were from the stock of the late Veronica Johns' store, Seashells Unlimited, and were donated from her estate. Those that incited the heaviest bidding were two Charonia tritonis, $74 and $36; Cypraecassis tenuis, $50; twelve Cryptopecten pallium,

$42, and six, $30; *Tridacna gigas*, $36; *Voluta loroisi*, $34; *Marginella mosaica*, $32; *Lyropecten nodosus*, $30; *Pecten strangei*, $24; *Haliotis rufescens*, $28; *Cypraea brevidonta*, $24. The following shells all sold for $22 each: *Conus aulicus*, *Glossus humanus*, *Voluta hunteri*, *Papuina pulcherrima*, *Melo aethiopica*, *Xenophora pallidula*. *Ecphora quadricostata*, and a set of three *Nautilus pompilius* - one natural, one peeled, and one bisected.

Bags of shell assortments on the sale table proved to be highly attractive, as did the wine, punch, cheese, cold cuts, and cake and coffee.

Dorothy Raeihle was induced to be present so that she could be surprised with an 80th birthday cake and hearty well-wishes. It was noted that Betty Renman would turn 87 in May. It was also announced that Tillie Weingartner, who had planned to be present, had unfortunately suffered a broken collarbone.

The door prizes were *Cyrtopleura costata*, won by Nick Katsaras, *Xenophora pallidula*, won by Hank Devine, and *Astraea heliotropium*, won by Howard Israel.

Milton Werner, Recording Sec'y

IN APPRECIATION

The New York Shell Club's Social-Auction on April 9th was a great success and we wish to thank all who participated.

Special thanks go to Dorothy Jensen for the use of her studio, and to Sol Weiss who was our auctioneer. We deeply appreciate the legacy of Veronica Parker Johns: most of the shells which were auctioned and sold on the bargain table.

In addition, many people helped with donations of shells, books, paintings and food, and provided many hours of help both before and during the affair. We here extend our thanks to the following people, and if anyone was inadvertently omitted please accept our apology and thanks. (The order in which names are listed is completely random and does not indicate the amount or value of their contribution.)

Sol Weiss
Rick Kelly
Al Scarpetti
Henry Gordon
Nick Katsaras
Howard Israel
Harvey Frajlich
Karen Guinta
Nancy McTiernan
Arline Reimann
'Mike' Werner
Hank Devine
Edward Cowles
Dorothy Jensen
Walter Sage
John Guinta
Theta Lourbacos
Rae Varga
Alex Tabakotani
Hans Reimann
Irving Hoppenwasser
John Cole
Eli Horowitz

Theta Lourbacos, on behalf of the
members of the New York Shell Club

JUNE 11th: ANNUAL ELECTION OF OFFICERS AND DIRECTORS

The present slate has agreed to accept nomination to serve another year except for our gracious corresponding secretary, Nancy McTiernan, who has moved away. Rae Varga has accepted nomination for the post. Nominations will also be accepted from the floor.

Joseph C. Hayes

We were extremely sorry to learn of the death of our associate, Joe C. Hayes of Washington. D.C. For eight years Joe was editor of the Newsletter of the National Capital Shell Club and created a consistently excellent club paper. He resigned as editor approximately a year ago because of health problems, but his death early this year came unexpectedly.

His club's Newsletter, Issue 96, Spring 1989, is dedicated to him and carries his photograph and a short biography outlining an active and interesting life — shared, beginning in the 1950's, with his wife, Marjorie. We learn that Joe was born January 18, 1909 on a farm in Oklahoma, and that he was always interested in nature, and in languages. After college, where he majored in Business Administration, he obtained work with the Farmers' Home Administration (FHA), and soon became state director. Later he worked for an offshoot of the Rockefeller Foundation, on projects in less advanced areas, using his talents in agriculture and business to assist farmers in growing and improving crops, with financial management. We quote from the NCSC Newsletter:

> Joe and Marjorie lived in nine different countries doing this sort of work. They lived in places where a white man had never been seen before, much less a woman. It was an opportunity that few people had the privilege of experiencing - a lesson in life. And there could be no better person to carry out the challenging programs than Joe Hayes. Everyone who met him, liked him. He was a good man who believed in the Golden Rule; kind, generous, very thorough and innovative. The natives called him "El Horte"; to them he was the epitome of a typical Yankee - tall, slim, strong and good-looking.

Joe and Marjorie retired to Washington in 1970 and a long-time appreciation of shells became a major interest.

We join with his many friends who mourn his loss. Our deepest sympathy is extended to Marjorie.

DR

RENATE WITTIG SKINNER

Conchologists around the world will be saddened to learn of the death of Renate Wittig Skinner, of Greenville, North Carolina, on March 24, 1989. Renate was born on December 2, 1922 in Dresden, Germany, and became a registered nurse in Dresden in 1951. She received a degree in Hotel Management in Hanover, Germany in 1954.

From 1954 to 1971 she was the owner and manager of a large hotel on Bali Island, Indonesia. She long had an interest in shells, particularly in the Olividae and the land mollusks of Indonesia. She was widely travelled in Southeast Asia, collected extensively throughout the Lesser Sunda Islands, and was fluent in German, English, Indonesian and Thai. She contributed to the German Club Conchylia and several American shell club newsletters (See NYSC NOTES 257.6, A Search for Amphidromus. -Ed.), but her most extensive contribution was a lengthy chapter on the biology and habitats of Balinese Olividae in Greifeneder's 1981 "Beitrage zur Kenntnis der Olividae."

On Bali she created a small museum of shells, trained Mr. Berate as a collector, and raised Amphidromus land snails. She first joined the Hawaiian Malacological Society in 1965, and later became active in the North Carolina Shell Club, the C.O.A., the Jacksonville, Long Island, New York and Keppel Bay (Queensland) Shell Clubs. She often visited Germany and contributed to the Club Conchylia publications.

Renate was a beautiful lady of sweet disposition who was always very helpful to fellow conchologists. She had recently donated a spectacular display of large shells, with models of living Florida Liguus Tree Snails, to the Science and Nature Center of River Park in Greenville, North Carolina. Her main study collection is to go to a leading museum in Florida. It is hoped that a memorial in the form of an Indonesian or Olividae public exhibit can be created in the new Sanibel Shell Museum to honor this lovely lady.

R. Tucker Abbott

FLORIDA MUSEUM RECEIVES THE CERNOHORSKY COLLECTION

By Harry G. Lee

The Malacology Division of the Florida Museum of Natural History, Gainesville (formerly the Florida State Museum) was given the Walter O. Cernohorsky Collection of the Miter shells recently. The collection included 1300 lots of about 3200 specimens, among them numerous paratypes. Costellariid, Mitrid, and Volutomitrid species (superfamily Mitracea of some authors) numbering in the several hundred comprised what must be one of, if not the finest collection of this sort. The acquisition will further strengthen the marine mollusk holdings of the museum - a component which has been well endowed over the past few years with addition of the Alabama Geological Survey (Maxwell Smith Collection included), Thomas and Paul McGinty, and the Margaret Teskey Collections. I'm sure all of our members are pleased and proud of the Museum's growth and most are especially happy to see the marine mollusks gaining emphasis.

Shell-O-Gram 30(2):8
Jacksonville, Florida

COMING EVENTS

June 17	Identification Day at the American Museum of Natural History. 1:00 to 4:30 p.m. in the Dana Education Wing. Museum scientists will be on hand to help identify mysterious artifacts, bones, feathers, insects, rocks (but no gemstones) and shells, to be examined by the experts at no charge. For more information call (212) 769-5305. (Announced in NATURAL HISTORY.)
June 19 - 23	The 17th annual convention of Conchologists of America will be held in San Diego, California, with headquarters at the Holiday Inn Embarcadero, 1355 North Harbor Drive. Hosted by the San Diego Shell Club. Chairman Don Pisor, 10373 El Honcho, San Diego, CA 92124. Or phone 619:279-9342.

June 25 - 30	Combined annual meeting of the American Malacologi-Society and the Western Society of Malacologists at Los Angeles, California. Housing on the University of Southern California's campus, Pardee Tower with reasonable rates. Residential food service is available except for the banquet. Contact: James H. McLean, AMU President, Los Angeles County Museum of Natural History, 900 Exposition Boulevard, Los Angeles CA 90007. Phone 213:744-3377.

News Releases

July 15 - 16	Keppel Bay Shell Show Yeppoon, Queensland, Australia. Contact: Jean M. Offord, 277 McDougall Street N. Rockhampton, Qld., Australia (079) 283-509
July 21 - 23	Jacksonville Shell Show Flag Pavilion, Jacksonville Beach, Florida Contact: Nellie Hawley, 11604 Surfwood Avenue Jacksonville, FL 32216 (904) 641-4606
Aug. 17 - 19	Jersey Cape Shell Show Stone Harbor, New Jersey Contact: J. B. Sessoms, P.O. Box 24, Ocean City, NJ 08226 (609) 653-8017
Aug. 12 - 13	Townsville Shell Show Townsville, Queensland, Australia Contact: Von Vandenburg, 12 Lillipilli Street, Vincent 4814, Townsville, Queensland, Australia (077) 75-6275
Sept 22 - 24	Crown Point Shell Show Merrillville, Indiana Contact: Judy Brooks, 12109 Kingfisher Road Crown Point, IN 46307 (219) 663-2700
Sept ?	Oregon Shell Show, Portland, Oregon Contact: Dr. Byron Travis, 4324 N.E. 47th Avenue Portland, OR 97218 (503) 284-1365
Sept 23 - 24	Gulf Coast Shell Show Panama City, Florida Contact: Bob Granda, 925 Rosemont Drive Panama City, FL 32405 (904) 769-2876
Oct. 7 - 8	Annual German Shell Fair Cologne, West Germany Contact: Dieter Rokel, Neckar Anlage 6 6930 Eberbach, West Germany (06271) 6987
Oct. 20 - 22	North Carolina Shell Show Wilmington, North Carolina Contact: Alta Van Landingham, P.O. Box 542 Hampstead, NC 28442 (919) 686-7537

(Continued ——)

Oct. 21 - 22 Philadelphia Shell Show
Philadelphia, Pennsylvania
Contact: Al Schilling, 419 Linden Ave.,
Glenside, PA 19038 (215) 886-5807
or toll free 1-800-345-1240

October 29 British National Shell Show
London, England
Contact: Kevin Brown, 12 Grainger Road
Isoeworth, Middlesex TW7 6PQ
England (01) 568-8333

(Schedule from Donald Dan)

October 28 British Shell Collectors' Club Shell Show
Napier Hall, Hide Place and Vincent Street,
Westminster, London, SW1, England

(from S. Peter Dance)

REVIEW:

COMMON AND SCIENTIFIC NAMES OF AQUATIC INVERTEBRATES FROM THE UNITED STATES AND CANADA: MOLLUSKS

by D. D. Turgeon, A. E. Bogan, E. V. Coan, W. K. Emerson, W. G. Lyons, W. L. Pratt, C. F. E. Roper, A. Scheltema, F. G. Thompson, and J. D. Williams. 1988. American Fisheries Society Special Publication 16, vii + 277 pp., 12 color pages. US $30 (cloth) and $24 (paper); AMU members: $24 and $19.

This volume, the first in a planned series on the aquatic invertebrate fauna of North America, is the product of years of joint effort by committees and individual members of the American Fisheries Society and the American Malacological Union. In addition, many specialists in various mollusk groups helped work the accumulated data into final form. Being the initial volume in the series, an array of details had to be decided, among them the principles governing the selection of common names, final presentation format, index, and color pages.

The purpose of the book is to provide a checklist of recognized species of North American mollusks and to recommend common names to correspond with accepted scientific names, so designed to "achieve uniformity and avoid confusion in nomenclature." Its intention is to reach a consensus on scientific names and generate a framework of common names that will become standard through continued usage. Approximately 5700 species from 332 families in 31 orders of 6 classes of mollusks (not including Aplacophora) are included in the list, covering native and introduced species from the continental United States and Canada living in fresh waters, marine waters from shoreline to 200 meters on the continental shelf, estuaries, and terrestrial habitats. Common names were provided for most species, the exceptions being very small and/or poorly known species and taxonomic groups, or forms very difficult to identify.

Common names were selected according to criteria designed to reflect broad current usage, existing vernacular names, and desirable descriptive terms, and are expected to be used with appropriate scientific names and not as substitutes for them. It is hoped that this list will serve to identify taxonomic groups in need of revision, foster interest in studying poorly known areas and stimulate publication of systematic and distributional data on mollusks.

The text of this volume begins with an alphabetical list of the families covered, followed by a phylogenetic list arranged by class, order, and family. The introductory section details the history and background, area of coverage, plan of the list, principles governing selection of common names, additional governing resolutions, future of this checklist, and acknowledgements. The body of the volume is the checklist, presented in a natural sequence of classes, orders, and families of mollusks, with genera and species arranged alphabetically within each family. Appendices list species known or thought to be extinct, and those listed by the U. S. government as endangered or threatened. Species names are presented with author and date of description, followed by area of occurrence (Atlantic, Pacific, Arctic; freshwater, terrestrial, estuarine, introduced, extinct), then the suggested common name. A detailed index combines scientific and common names, Finally there is provided a twelve-page "Portfolio of Mollusk Diversity" in color.

This first edition is not intended to be the final word on the subject. Proposed changes will be assembled by the overseeing committee of the American Fisheries Society, then these changes will be considered and revisions made where necessary. The second and future editions plan to add justifications for revisions, so that the series will be a record of the advances in molluscan research over time. It is important that everyone using this checklist make comments where warranted and thus help it to become a more complete and stable framework for the nomenclature of the North American molluscan fauna. It is expected that this first edition will become an invaluable reference for anyone involved with mollusks. All those individuals, named and unnamed, who worked on this checklist deserve the appreciation of all who will use this book in years to come — their cooperative labors have resulted in an important and worthwhile work.

Walter E. Sage

[Order American Fisheries Society Special Publication 16 (Names of Mollusks) from American Fisheries Society, 5410 Grosvenor Lane, Suite 110, Bethesda, Maryland 20814-2199. Discount for AFS and AMU members is for one book only. For shipment outside the USA only, add $2.00 postage per book. $30 cloth, $24 paper. —Ed.]

NOTES ON A NAME

Considering the well-known common names of only one of our local species we can understand the time and trials it took to concur on just one common name per species for the checklist reviewed in the preceding article. For instance, locally Mercenaria mercenaria has six common names: usually Hard Clam; sometimes Round Clam; the large ones, Chowder Clam (as that is how they end up); smaller sizes are Little Necks and Cherrystones and are eaten raw. That's five. The selected common name for Mercenaria mercenaria is one that has been in use for centuries: Quahog (pronounced 'Kwō-hôg) derived from the Narragansett Indian name which the early settlers spelled Poquahauges, Poquahock, Quauhog etc. A most excellent selection.

D. Raeihle

FOREWORD: We present the fourth and concluding installment of the talk by Joshua Baily read before the San Diego Shell Club November 27th, 1933 and published in the May 1988 issue of Shells and Sea Life by Sally and Steve Long, 1701 Hyland Street, Bayside, California 95524-9302. See NYSC NOTES 308-310 for the earlier installments.

FOUNDERS OF WEST COAST CONCHOLOGY (IV)

Joshua L. Baily, Jr.

The venerable dean of all west coast conchologists is Robert Edwards Carter Stearns. If we judge him by the honors conferred upon his scientific institutions, or by the number of species that bear his name, or by the voluminousness and general excellence of his writings, we will have to concede that he was the most scholarly of all those who have ever taken up west coast conchology. Yet his daughter is authority for the statement that his schooling terminated in the grammar grades. It is true that he was a Ph.D. from the University of California, but this degree was honorary. In his youth his talents inclined toward art, his most ambitious work being a painting of the Hudson River from Troy to the sea, which occupied a canvas nine feet wide and eight hundred feet long, which he exhibited and finally sold.

In 1854 he became interested in copper mining, and for four years lived on Lake Superior. Then he settled in San Francisco, becoming editor of a religious weekly, in which he vigorously attacked slavery, and together with Thomas Starr King he is generally credited with having saved California for the Union. There seems to be some doubt as to whether this periodical was called the Pacific Congregationalist or the Pacific Methodist, but Dr. Stearns was a Unitarian, perhaps the religion of the sheet he edited echoed more of his theology than that of the owner.

His interest in public affairs lasted all his life, and in his last years he opposed the Boer War, the annexation of the Philippines, and the growing tendency toward militarism in the United States with the same vigor with which he opposed slavery in his youth. In 1862 he was appointed deputy clerk of the supreme court of the state, and in 1874 was made secretary of the state university under president Gilman. Later he held positions with the Fish Commission, the National Museum, and the Geological Survey, for whom he did a great deal of work in New Jersey and in Florida. He died in Los Angeles in 1909 in his 83rd year.

No survey of west coast conchology would be complete without some mention of Dr. William Healey Dall, for so many years connected with the staff of the Geological Survey, the National Museum, and the Wagner Free Institute of Science. Dr. Dall's interest in shells dates back to the time of the laying of the Atlantic cable. In the early days this cable broke so many times that the Western Union considered abandoning it altogether, and laying a cable across the Pacific instead. Bering Strait is only sixty miles wide, but is frequently choked with ice, but the Aleutian Islands offer the possibility of a chain of cables, no one link of which need be over two hundred miles long. The advantage offered by these routes is obvious when compared with the two thousand and odd mile stretch between Newfoundland and Ireland. Consequently, some time in the sixties the Western Union sent two expeditions into the north Pacific, one to map the shores of Siberia, and the other to do the same for Alaska.

A few years later the Atlantic cable was made practical, and the Pacific expeditions were recalled, but not until each had accomplished an unforeseen result. The Siberian expedition was in charge of George Kennan, who became interested in the Russian penological system, which he exposed so effectively that he was never allowed to enter Siberia again, while the Alaskan expedition under Dall made a complete survey of every harbor in Alaska, and also assembled the most complete collection of shells that had ever been made on that coast. As a result of his accomplishments with shells he was loaned by the Geological Survey to the National Museum, which he served as curator for over half a century, and while there compiled a list of marine molluscs found between Point Barrow and San Diego, in which one species out of every three was named either by Dall himself or by his assistant, Dr. Paul Bartsch. This list is of course not complete today - it is fifteen years old - but it is an indispensable aid to anyone working in this field. Dall's most significant contribution to the science, however, is his work on the tertiary mollusca of Florida, in which he proposes a new classification of bivalves based on the hinge structure.

The man who undoubtedly did more than anyone else to popularize the study of conchology on the coast was Professor Josiah Keep. He was born at Paxton, Massachusetts, in 1849, and in 1874 graduated from Amherst. A generation earlier Charles B. Adams, who compiled the catalog of Panama shells already referred to, had graduated from the same college which subsequently became the custodian of his collection, and it was doubtless this contact that determined Professor Keep's life work.

In 1877 he settled in the bay region of San Francisco, where he began his career as a teacher - one year at Golden Gate Academy, seven years in the Alameda High School, and twenty-six years at Mills College. He was also for a time president of the Isaac Lee chapter of the Agassiz Association, and curator of Geology and Mollusca at the California Academy of Sciences, that pioneer institution with fog shrouding the lower levels. One cannot appreciate the San Francisco fog unless one has appreciated it. When Cabrillo sailed past the Golden Gate in 1542 he didn't see it because it was obscured by fog. In the following centuries pioneer explorers of England, Russia, Spain, Denmark, and probably Norway and Japan, all passed it without suspecting its existance. It was finally discovered by a party of Franciscans who were walking from Mexico City to Monterey and had gotten lost. But Professor doesn't go back into history. He impresses the thickness of the fog on his reader's mind by telling a story about a friend of his, a sea captain, who sailed along the coast, thinking he was about five miles from shore. All at once the fog lifted, for a few seconds only, and he saw a clothes line with the week's wash hanging out. Although these danger signals were white, they were as effective as if they had been old-fashioned red underflannels, and the captain threw his helm over and made for the open sea. A few minutes more and he would have been on the rocks. Then Professor Keep ends the story by remarking "What a good thing that it happened to be Monday!" Such a story has no place in a scientific treatise, but it is effective here because it grips the imagination of the reader, who feels that

Bolinas is no longer merely a name on a map but a real place to which he too may go some day to collect shells.

These are examples of Professor Keep's own literary style. His book is made doubly pleasant reading, however, by the inclusion of quotations with which the reader is already familiar from such sources as the Bible, Bishop Berkeley, Gray's Elegy in a Country Churchyard, and the poem which declares that "the heathen Chinee is peculiar."

It is not so generally known that Professor Keep was also a poet, and perhaps there could be no more appropriate way to end a discourse of this nature than by quoting in full one of his lesser known essays in this field.

THE SEA SHELL'S ANSWER

O sing me a song, lovely child of the sea,
For my heart seeks to fathom the deep mystery;
And I long for the story thy cold lips could tell
Of the forces that made thee a beautiful shell.

O sing of the life that fashioned thy form
With such wonderful grace, and with colors so warm
Has dyed thy pur marbles, that radiant they shine
Like imprisoned sunbeams; say, was that life thine?

Did thy frail mollusk know, as he fashioned his cell
He was building a palace within which to dwell?
Did his cold heart beat quicker as each added line
Made thy beauty more perfect? Was his joy like mine?

Then the fair shell replied, Long ago it was said
That the skeptic would doubt though one rose from the dead.
Your questions are right and the answers are plain
But approach me with faith or your search will be vain.

Seek for what is revealed, nor with less be content,
For with every fair form a true message is sent.
Could the dull mollusk know what to you is so plain?
Or could beautiful lines bring him aught of gain?

Lo, a Power divine in all nature is found;
A Power omniscient, unfailing, profound;
A great Heart that loves beauty, and order, and light,
In the flowers, in the shells, in the stars of the night.

And this Power divine, this Heart wondrous kind,
Bids us work out a message to each human mind.
So we build as He guides us, and happy is he
Who can read God's great thought in the shells of the sea.

* * *

In the preparation of this talk I desire to acknowledge with thanks assistance received from Dr. George Wharton James, Dr. Henry A. Pilsbry, Dr. Fred Baker, and Mr. John Davidson.

[ed - Original text for Baily's talk available in San Diego Public Library.]

[Joshua Longstreth Baily, Jr. died in 1981, aged 92. He bequeathed his valuable collection to the San Diego Society of Natural History.]

LETTERS TO THE NEW YORK SHELL CLUB:

Paris, May 2, 1989

Dear Friends,

Have you any CARDIUM? If you do, I'd be ready to buy them. If you do not have any, maybe you could get hold of some.

Certain members of your club are perhaps in possession of "CARDIUMS" of the INDO-PACIFIC, and in particular TRACHYCARDIINAE and also Neogène fossils from the United States, material in which I am interested.

I am also ready to exchange shells from my list, composed of European and African specimens, against any CARDIUM, permitting you to enlarge your collection in certain families, with specimens rarely offered.

If you are interested in specimens from the same regions but not on the list, tell me, I can probably find them more easily than you.

Since my goal is mostly scientific, I could eventually accept odd valves, as long as they are in excellent condition.

CARDIUM species need not be determined, as long as you can say precisely where they were found.

I look forward to your reply and propositions.

Yours sincerely,

Jacques P. Vidal

Attaché au Muséum National
d'Histoire Naturelle de Paris

6 rue Saint-Saens
75015 Paris
France

[The list accompanying the above letter is of Gastropoda: 176 species of 16 families, and Bivalvia: 130 species of 17 families. Data for each of over 300 species includes place of origin (Europe Atlantic, Europe Mediterranean, North Africa Mediterranean - mostly Tunisia, West Africa - mostly Gabon), size in millimeters, condition, degree of rarity and approximate value. The list is for circulation among those seriously interested. Inquire of the editor, or Walter Sage, or of Mr. Vidal.]

— Ed.

---

27 March 1989

Dear friends,

here is my request to you.

My name is Vitaly Borodin. I'm 33 and I live in Riga. It's already more than 10 years that I go in for underwater sports. Besides, recently I have started collecting sea shells.

I would like to correspond with some of your Club members. We would exchange our collections with them. I hope to make friends with them. Maybe some of them will venture to send me some of the books:

As currency is not available in this country, I could offer you some barter, say books on the SU, on art etc or available seashells, or any other shells from the USSR and some tropical shells.

Looking forward to your answer,

very truly yours

Vitaly Borodin
I Berzpils Street, Apt.58
Riga 226039
Latvian SSR, USSR

[Mr. Borodin listed as very desirable Rice's 1985 Catalog, Burgess' 1985 Cowries of the World, Radwin & D'Attilio's 1976 Murex Shells of the World, Walls' 1978 synopsis on Cones. Available seashells listed were Ceratostoma burnettii, Chlamus swifti, Calista bresisiphonata, Pecten yessoensis, Rapana venosa, Neptunia eulimata, N. bulbacea.]

IN THE PATH OF THE STREAM

For at least ten years, a project of the Jacksonville Shell Club has been to compile a Northeast Florida Checklist of mollusks. Now listed are over 500 species, including material from dredgings as far offshore as 65 miles (Ted Yocius), and finds from among the discards of the commercial scallop boats.

The latest addition to the checklist, reported in Shell-O-Gram of April 1989 30(2):9, is Lopha frons (Linné, 1758), the 'Coon Oyster. It was taken by Gary Kirkland while diving a reef approximately 25 miles off Mayport (depth was not given). He found a piece of polyurethane fishing line that had fouled in the reef and become covered with organisms, the most common of which was Lopha frons. Some of the other species attached were Pteria colymbus, the Atlantic Wing Oyster, Pinctada imbricata, the Atlantic Pearl Oyster, Arca zebra, the Turkey Wing, large Gooseneck Barnacles, Tunicates, Stinging Hydroids, Algae, etc.

Note the similarity of the organisms listed above and those found on the derelict speedboat which drifted ashore in England (See NOTES No. 309.2, Christopher Columbus and Pteria colymbus.). All the species noted in both reports have been verified live off North Carolina from the area of the coral reef which exists under the Gulf Stream. Could North Carolina have been the home port of the derelict? Or was it Florida? The composition of the sand in the hull might have been a clue, but news of the derelict's cargo of hitchhikers reached malacologists too late for them to make much of an examination.

Reference:

Porter, Hugh J., 1974. The North Carolina Marine and Estuarine Mollusca, an Atlas of Occurrence. The University of North Carolina, Institute of Marine Sciences, Morehead City, North Carolina. 351 pp.

Dorothy Raeihle

A pristine stream is beautiful to see, and to explore gently. They are becoming few in number. The following article by Ms. Kathy Schneider, a zoologist and coordinator of the New York State Heritage Program, is reprinted here with the permission of the New York State Nature Conservancy Field Office from Spring 1989 Newsletter, page 7.

THE ECOLOGY OF A PRISTINE CREEK IN WESTERN NEW YORK

Kathy Schneider

French Creek rises in the foothills of the Allegheny Plateau, near the southern terminus of the last glacial advance. From these headwaters in the far southwest corner of our state, it travels south and west into western Pennsylvania. In New York it is small and swift-running, but in Pennsylvania it attains the size of a small river before emptying into the Allegheny. The New York section meanders over roughly fifteen miles of farmland, alternating riffle and pool habitats over a stream bottom that varies from solid bedrock to soft gravel. The water is clear and rich in oxygen and calcium, critical characteristics for its uniquely diverse fauna.

Our knowledge of French Creek is still incomplete but what we have learned to date is impressive. Fish surveys in New York State have documented eleven rare species and the list from Pennsylvania is equally lengthy. Most are darters and shiners, small riffle-dwelling fish, usually restricted to the most pristine stream habitats. In Crawford County, Pennsylvania, a single French Creek riffle was shown to provide habitat for thirteen species of darters.

But French Creek is home to more than just fishes. In 1988 the Pennsylvania Natural Diversity Inventory contracted Dr. David Stansbery of the Museum of Zoology at Ohio State University to inventory French Creek's mussel fauna. These freshwater clam-like animals spend most of their lives buried inconspicuously in the stream bottom, making their living as filter feeders. They strain oxygen and food from the water with their gills and use the extracted nutrients to grow and reproduce. Most freshwater mussels are long-lived animals. As the fleshy part of the mussel grows, it adds a new layer of calcium carbonate to its shell creating annual rings that can be used to age the individual.

The reproductive biology of freshwater mussels is a lesson in community interrelationships. In most species the males shed sperm into the water. Their union with the female's eggs depends on moving water and chance. With luck, the male gametes are taken into the gills of the female where fertilization occurs. There the eggs develop into tiny larval mussels called glochidia which, after a period of time, are discharged into the water. In order for a single glochidium to complete its metamorphosis into an adult mussel, it must attach itself to a host fish (or in one case a salamander). We do not know how host-specific most mussels are but one thing is certain — glochidia that fail to find an appropriate host die.

Over evolutionary time mussels have developed a variety of methods to increase the likelihood that glochidia will encounter hosts. Some release glochidia in response to the shadow of a passing fish. Others wave the fleshy shell-secreting mantle flap in a manner that is apparently attractive to some hosts. Nevertheless, for a larval mussel, making contact with an appropriate host is clearly a chancy affair.

If the glochidium is fortunate enough to attach itself to the gills of the right fish, it completes its metaphorphosis in a few weeks and drops to the stream bottom as a tiny mussel. There it may drift with the current for a while and, if all goes well, it will eventually come to rest on a suitable substrate where it can embed its muscular foot and spend its adult life.

Dr. Stansbery's field surveys identified twenty-five species of mussels from French Creek in Pennsylvania. One species known historically from the area still eludes confirmation and may be extirpated. The mussel fauna of French Creek in New York is poorly known, but because it is part of the Allegheny drainage we expect to find interior basin species at the eastern limit of their range. The diversity of rare fishes that has been documented from this part of New York suggest that the habitat is still pristine.

The protection of French Creek and its associated aquatic community poses some interesting challenges for The Nature Conservancy. The threats to our rivers and streams are numerous and imminent. Any activity that reduces the amount of dissolved oxygen in the water can be devastating to fish and mussel populations. This vital gas comes from two sources. It is produced by aquatic plants through the process of photosynthesis and it becomes dissolved mechanically as water moves through riffles, rapids and waterfalls, trapping bubbles of air beneath the surface. Thus dams, which slow the current, and agricultural herbicides, which drain into streams and kill aquatic plants, cause the removal of oxygen from aquatic systems. Even the seemingly innocuous practice of removing logs from streams can be detrimental since such obstacles create the mechanical mixing that adds life-giving oxygen to the aquatic environment.

The amount of oxygen available to fish and mussels also depends on the rate at which it is removed from the system. Oxygen is used during bacterial decomposition of organic compounds. The addition of compounds rich in nitrogen and/or phosphorus, which cause algal blooms, fuel bacterial processes and deplete oxygen from the water. Nutrient enrichment comes in many forms. Cows wading in the water and fertilizer runoff add nutrients to the streams. Most waste water treatment plants do not remove nitrogen and phosphorus from the effluent. These nutrient-rich effluents can have a significant impact on the fauna and flora downstream. For example, Meadville is the only major urbanized area in Pennsylvania on French Creek. Dr. Stansbery's surveys documented a reduction in mussel diversity that was still evident twelve miles below the city.

A myriad of other factors threaten stream life. Silt from erosion and road runoff collects on the bottom, concentrating potentially toxic chemicals and organic acids in the very habitat where mussels live and fish nest. Fish management practices that remove "undesirable" native fishes and introduce game species, upset the community interrelationships so vital to mussel reproduction. Collectors also pose a threat. The shells of pearly mussels, once used for making buttons, are still collected for making beads implanted in oysters to form cultured pearls. Add to these problems the natural predation of raccoons and muskrats and the ravages of drought and it is a wonder that streams as diverse as French Creek still exist.

The protection of French Creek will require a cooperative effort that crosses political boundaries and spans many miles of watershed. Landowners along the flood plain will need to be more sensitized to the needs of this stream's rare species and, more important, convinced that they are worth protecting. Inconspicuous and non-charismatic, French Creek's fish and mussels are just a small part of a spectacularly diverse aquatic ecosystem. New York's position at its headwaters makes our protection efforts especially critical.

NEW ADDITIONS TO NYSC LIBRARY

JOURNAL OF SHELLFISH RESEARCH, 7(4):506-705, December 1988. Mostly the commercially important species of mollusks, crabs and lobsters — their biology, the culture of, and diseases. Also abstracts of technical papers presented at the annual meeting held in Los Angeles last February.

HISTORIA DA MALACOLOGIA EM PORTUGAL, by Luis Pisani Burnay & Antonio A. Monteiro, Occasional Publications of the Portuguese Society of Malacology. Lisbon, 1988. 123 pages. In Portuguese, with a four-page summary in English. Interesting illustrations in black and white including one of the beautiful Conus cedonulli acquired by King John V at an "astronomical price" in the early 18th century. Those with even a small degree of knowledge of Latin languages can enjoy it.

GLORIA MARIS 27(4) 1988, Belgian society for conchology, Part I of THE CONIDAE OF THE SOLOMON ISLANDS, by A. Delsaerdt, Stationsstraat 10, 3220 Aarschot, Belgium. In English. Illustrated Cones, black and white photos, 99 species.

UNDERWATER NATURALIST, bulletin of the American Littoral Society.
Vol. 17 (3) September 1988: Sand-Burrowing Amphipods, Of Man and Manatee in Hobe Sound, The Horseshoe Crab, Recollections on the Portuguese Man O'War.
Vol. 17 (4) December 1988: The Invisible Food Web, San Salvador — An Outdoor Laboratory, Confusing Caribbean Carcharinids, Wetlands, Marshes, Coastal Laws.
Vol. 18 (1) March 1989: This issue is devoted to sea turtles and terrapins — Ridley, Hawksbill, Green, Leatherback, and a natural history of the Diamondback. Habitats, conservation, behavior, biology, and the endangerment by man's activites.

PALLIDULA (as in Xenophora pallidula?) Vol. 19 (2 & 3) December 1988, The Magazine of the British Shell Collectors' Club. Observations and reports by members: Family Cassidae, a study by Geoff Cox; Rare Shells from Barbados Depths, by Noel Gregory; Cowries in (East) Indian Folklore, by Editor S. Peter Dance, plus short articles.
Vol. 19 (4) Part 2 of Costa Brava Sketches, by S. Peter Dance; Four days on Easter Island, an informative report by Alex Arthur; a Review of Historia da Malacologia em Portugal plus reviews of exchange newsletters, by the editor.

OF THE 'RED TIDE' AND 'BROWN TIDE'

We are all aware of the devastation wreaked in the last few years on the scallop beds of eastern Long Island by the so-called 'Brown Tide'. We are not alone: Marine fauna, fish and mammals as well as mollusks have been affected by the mysterious phenomena, from the coast of Alaska south through British Columbia and all our Pacific Coast states; on the east coast its presence is evident from the St. Lawrence estuary south to Florida.

A special issue [7 (4) 586-705] of the Journal of Shellfish Research is entitled "Toxic Algal Blooms: Hazards to Shellfish and Industry," and reports the proceedings of a special symposium held during the annual meeting of the National Shellfisheries Association, June 1987 in Halifax, Nova Scotia. Toxic blooms and their poisons are not confined to this continent; a somewhat similar condition has been discovered in the waters off western Scandinavia.

These paragraphs are just to assure you that the scientists are working long and hard on the problems; we wish them all success. Meanwhile we hope that the phenomena will recede as unexpectedly as it came upon us. What else can we do? Stop polluting!

At first it seemed that only mollusks were affected — then we heard that some fish were involved. Now it has crept into mammals through the food chain. In Sea Technology's Ocean Research section 30(3):75 we find a report which explains the sad demise of seals and dolphins that washed ashore last winter, many quite nearby on Long Island:

> Dr. Joseph Geraci, who headed a team of National Oceanic & Atmospheric Administration and Marine Mammal Commission investigators, said that a naturally occurring toxin from red tide algae was responsible for the death of some 740 bottlenose dolphin that had washed ashore from New Jersey to Florida from mid-1987 to early 1988. A NOAA spokesman estimated that a substantially larger number died and were lost at sea.
>
> The red tide alga, known as ptychodiscus brevis, produces the powerful poison, brevetoxin, which killed some of the dolphins directly and weakened others, causing them to be more susceptible to a host of viral and bacterial infections. Geraci, a veteranarian from the University of Guelph in Ontario, Canada, reported that the toxin was carried up the coast by menhaden — or Spanish mackerel that had eaten menhaden — that had fed on the algae.
>
> According to NOAA, it was the first known instance where the toxin was transmitted to a mammal through tainted fish. The toxin itself is confined to fish liver and other viscera and is not present in the fish flesh, posing no threat to humans eating fillets from affected fish.

Dorothy Raeihle

RECENT 'BROWN TIDE' CONDITIONS

In a front-page article in the New York Times of May 31, 1989, Eric Schmitt reports that the brown tide has subsided in the eastern Long Island waters. The coastal waters are almost clear of the microscopic plants, and there are indications that various forms of marine life are returning to bays, harbors and estuaries as the water becomes clear again.

Efforts to reseed bay scallop beds have started with some success, and better development is expected this year for the Long Island scallop beds.

It is not clear whether the brown tide has really disappeared or whether it may come again. Since research has not yet been able to determine why it appeared several years ago, or why it has now subsided, future appearance of the brown tide is possible. There are a number of theories as to its origin, but little factual basis for ascertaining which factor, or combination of factors, may be the cause. Such factors include unusual ocean currents, unusual organisms, changes in salinity, changes in water temperatures, and - of course - pollution.

Vito Minei, superviser of the ecology office of the Suffolk County Health Services Department, is quoted by Eric Schmitt, as follows;

> It's very encouraging, but we're not sure whether the brown tide is gone forever or temporarily giving us a break.
>
> . . . . . .
>
> If brown tide served any positive purpose it brought more focus on the Peconic Bay system and made government agencies, businesses and environmental groups look at the pollutants going into the system.

Eric Schmitt reports the following efforts on pollution in his New York Times article;

> a $1 million study of the effect of sewage, fertilizers and storm-water runoff on the bays
>
> In Riverhead, for example, town leaders are exploring ways to dispose of treated sewage on land instead of dumping it into Flanders Bay. Southold has received a $200,000 Federal grant to build a freshwater wetlands at Town Creek to act as a natural filter for phosphates and nitrates, which some scientists believe may promote the growth of brown tides.

TL

BEST WISHES TO ALL FOR A SPLENDID SUMMER

The Officers of New York Shell Club

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1989-90

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 10, 1989
October 8, 1989
November 12, 1989
December 10, 1989
January 14, 1990
February 11, 1990
March 11, 1990
April 8, 1990
May 6, 1990 (1st Sunday)
June 10, 1990

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meeting.)

SUNDAY, SEPTEMBER 10, 1989, at 2:00 p.m.

SEASON OPENER - All members invited to bring any specimens, and share their summer's collecting adventures and activities.

NOTE: Details of our October and November meetings will be mailed to New York area members about the end of September.

CONTENTS

Page

Status Report, W. E. Old Malacology Fund. W. K. Emerson 2
Obituary: Clare K. Stout 3
1990 Long Island Shell Show May 5-6. 3
Oregon designates state shell; listing of 11 states and their official shells. Dorothy Raeihle 4

PUBLICATIONS:

Marine Gastropods Curaçao, Aruba and Bonaire. By DeJong & Coomans. Publ. announcement 5
Sterkiana revived. Announcement 5
Sea of Cortez Marine Invertebrates. By Alex Kerstitch. Review by Myers 5
The Wilderness Coast. By Jack Rudloe. Nat'l Fisherman 6
Under Alaska Seas. By Barr & Barr. Nat'l Fisherman 6
Seashells of Southern Arabia. By Donald and Eloise Bosch. Review, Walter Sage 7
Compendium of Land Shells. By R. Tucker Abbott. Publ. announcement 7

NOTES AND NEWS:

Gloria Maris bilingual reports; Sanibel 8
Museum's advisory board; Albert Taxson 8
Collection; Snorkeling How-to; American 8
Littoral Soc. Annual Mtg. October 13-15 8
Seafloor Atlas; Brown Tide & toxin; 9
Sand Dollars. 9
Chichimeca, Early Shell Traders and Artisans. By Helen DuShane. Festivus, June 1989 10
AMU/WSM and COA Meetings. 14
Pigmentation Influenced by Diet. Jean Cate, D. Raeihle 14
Two "Hairy Tritons." Editor 15

ENCLOSURE: San Diego Shell Club's announcement of the Anthony D'Attilio student research grant in malacology.

A STATUS REPORT
on the
WILLIAM E. OLD, Jr. MALACOLOGY FUND, AMNH

Shortly after the tragic and unexpected death of Bill Old on December 31, 1982, the American Museum of Natural History established, in recognition of Bill's long and devoted service, the William E. Old, Jr. Malacology Fund in the Department of Invertebrates. Bill had served with distinction and dedication as the collection manager of the Museum's reference collection of Recent mollusks for more than two decades. During Bill's tenure, the size of the collection nearly tripled, from 74,000 to more than 200,000 lots. He was a friend to many collectors and frequently served as judge for shell club shows across the United States. The Fund is used to support the Department's educational and research programs in malacology, especially the collection, which was Bill's pride and joy.

The Fund is a permanent part of the Museum's endowment and it receives a prorated portion of the income derived from the Museum's investment portfolio. Thus far, revenue from the Fund has enabled us to fill major biological and geographical gaps in the reference collection and to obtain specimens needed to complete ongoing research projects.

With revenue generated annually from the Fund, we recently purchased a computer system that provides a retrievable data base for the catalog and produces laser print-outs of the labels which accompany the specimen-lots. Thus far, more than 5,000 lots, including all of the type specimens, have been cataloged and added to the stored data-base. We have ordered equipment for a second computer station in order to further expedite the cataloging of our backlog which approaches 30,000 uncataloged lots. The cost of the computer hard- and software required to establish these state of art curatorial facilities was nearly $10,000.00 and we believe Bill would be proud of our new facilities.

We greatly appreciate the generosity of many of Bill's friends who provided the financial support that enabled the American Museum to establish this perpetual Fund to honor Bill's life and work. Further monetary donations and gifts of specimens from friends and those interested in malacological research will help ensure continued support of the programs in molluscan studies at the American Museum. Tax-deductible contributions will be gratefully acknowledged and should be made payable to the William E. Old, Jr. Malacology Fund and sent to the attention of Dr. William K. Emerson, Department of Invertebrates, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024.

WKE, AMNH

Summaries of Bill Old's life and accomplishments, with photographs and list of publications, were published in the March, 1983 issue of New York Shell Club Notes (No. 286, pages 2-9 plus enclosures) and in the American Malacological Bulletin, Vol. 1 (1983):75-78.

A brief note, with photograph, appeared in Nautilus 97(1):43.

CLARE K. STOUT

Clare Stout, widow of Gardner D. Stout, was a malacologist and explorer in her own right. She died on May 8th at her home in New Canaan, Connecticut, at age 81.

Gardner D. Stout was president of the American Museum from 1968 to 1975. Mrs. Stout accompanied her husband on his worldwide travels; she was his secretary and photographer on these trips. He had a strong interest in ornithology; she was an avid collector of marine shells and made notable contributions to the Department of Mollusks. She was introduced into membership in the New York Shell Club by Bill Old in January, 1965, and although she was not active as an attending member she kept her membership constant for these almost twenty-five years.

Clare Stout

It was Clare Stout who conceived the idea of creating the Hall of Mollusks and Mankind. She had long recognized that mollusks, especially their shells, serve many purposes in human society — practical, symbolic, and aesthetic. The collecting of shells has a history reaching back thousands of years. Their diversity, permanence, accessibility, and convenient size have all given mollusk shells a unique role in human affairs. Exhibiting mollusks would therefore demand a special approach that, if successful, would yield special rewards to the public.

Mrs. Stout discussed the idea of an exhibit with William K. Emerson, then chairman of the Department of Living Invertebrates. Their enthusiasm was contagious. She encouraged the Board of Trustees to implement construction of the Hall. She personally raised the necessary funds.

In December 1975 The American Museum of Natural History opened the new hall, Mollusks and Mankind. Unlike any other hall in the Museum, this one gives almost equal space to three disparate fields — biology, anthropology, and art. It also crosses worldwide cultural boundaries, ranging from isolated island peoples to urban European societies.

Our members who live within reach of The American Museum always enjoy visiting the Hall of Mollusks and studying the exhibits. On your next visit, remember that it all came about thanks to Clare Stout.

Mrs. Stout is survived by her sons Gardner, Jr., and Prentice K.

References: Margaret Cooper in CURATOR 19/2 1976, AMNH.
GRAPEVINE 47(3):4, Obituary, Photograph, AMNH.

Dorothy Raeihle

LONG ISLAND SHELL SHOW, 1990

The Long Island Shell Club has scheduled its 1990 Shell Show for Saturday and Sunday, May 5th and 6th, at the Freeport (Long Island) Recreation Center. Your exhibit will be welcomed; start planning now. For details, contact (Mrs.) Vi Greenlaw, 5 Etna Lane, Dix Hills, NY 11746. Telephone: (516) 421-5235.

OREGON DESIGNATES AN OFFICIAL STATE SHELL:
Fusitriton oregonensis (Redfield, 1848)

A few weeks ago in a conversation with Margaret Teskey, she proudly announced that the "Hairy Triton" had been declared the state shell of Oregon. Margaret had been instrumental in activating a campaign for a state shell; the campaign climaxed when the proposal was introduced into the legislature by State Representative Mary Alice Ford with subsequent approval.

Shortly thereafter Mary Ruth and Hank Foglino visited Margaret who produced a copy of the report which appeared in Oregon's Stateman Journal in their feature "Weekly Roundup — Winners and Losers." The following was under the heading of "Winner":

> Oregon went millions of years into its history, when much of the state was under water, to find another state symbol — a shell. This shell is the Oregon triton, which is found along most of the West Coast.
>
> We have become the 12th state to adopt a state shell, which is the symbol of antiquity. The shell joins the Douglas fir, filbert, beaver, thunderegg,* and various other things as state symbols.
>
> (* Fossilized dinosaur egg. — Ed.)

The above report announces that Oregon is the 12th state to designate a state shell. We can track down only ten, positively, plus one (Rhode Island?) without documentation. What state and shell is missing? We present the information that we have of the states, the shells, and the dates of adoption: (Please help us fill in?)

FLORIDA:	*Pleuroploca gigantea* (Kiener, 1840), the Florida Horse Conch.	June 18, 1969.
GEORGIA:	*Busycon carica* (Gmelin, 1791) subspecies *eliceans* (Montfort, 1810). Kiener's Whelk.	February 3, 1987.
MARYLAND:	*Ecphora quadricostata* Say.	October 1984.
MASSACHUSETTS:	*Neptunea lyrata decemcostata* (Say, 1826) New England Neptune.	June 1987.
NEW JERSEY:	*Mercenaria mercenaria* (Linné, 1758). Northern Quahog.	. . 1987.
NEW YORK:	*Argopecten irradians* (Lamarck, 1819). Atlantic Bay Scallop.	August 3, 1988.
NORTH CAROLINA:	*Phalium granulatum* (Born, 1778). The Scotch Bonnet.	May 28, 1965.
OREGON:	*Fusitriton oregonensis* (Redfield, 1848). Oregon Triton, Hairy Triton.	. . 1989.
RHODE ISLAND ?	*Mercenaria mercenaria* (Linné, 1758) ???	
SOUTH CAROLINA	*Oliva sayana* Ravenel, 1834. The Lettered Olive.	. . 1984.
TEXAS:	*Busycon perversum* (Linné, 1758) subspecies *pulleyi* (Hollister, 1958).	April 3, 1987.

DR

PUBLICATIONS:

MARINE GASTROPODS FROM CURAÇAO, ARUBA AND BONAIRE

by K. M. DeJong and H. E. Coomans, 1988. Hard cover, $42.50.

This book discusses 745 species of Recent marine gastropods (Prosobranchs, shelled Opisthobranchs and Pulmonates) collected on three islands of the Netherlands Antilles, situated off the coast of Venezuela. The research was carried out at the Zoological Museum of the University of Amsterdam. Special attention has been given to the small and lesser known gastropods, resulting in 58 species new to science. For the identification, a number of keys is supplied.

The fauna of the southern Caribbean has proven to differ somewhat from that of the rest of the Caribbean Sea. Over 480 species are illustrated on 47 plates, consisting of original drawings and photographs, SEM photographs, and figures from the literature. For the non-figured species reference is made to illustrations in modern handbooks on Caribbean mollusks.

This book is important to shell collectors and scientists working on the fauna of the West Indies.

— Publisher's announcement.

As no instructions for ordering were included with the above announcement, we suggest that you inquire of the authors at the Zoologisch Museum, Plantage Middenlaan 53, Amsterdam -C, Netherlands.

STERKIANA,

a molluscan journal devoted to the scientific study of land and freshwater shells of North America, has been received after a ten-year lull. Originally it was published by Dr. Aurèle La Rocque of Columbus, Ohio. Now, numbers 71 and 72 have been issued in Radford, Virginia, under the co-editorship of Drs. Sally D. Dennis and John M. Bates. Annual subscription for individuals is $10.00, and for institutions, $14.00. Write to: Dr. Sally D. Dennis, Biology Dept., Radford University, Radford, Virginia 24142.

American Conchologist 17(2):21

SEA OF CORTEZ MARINE INVERTEBRATES,
A Guide for the Pacific Coast, Mexico to Ecuador

by Alex Kerstitch. Published by Sea Challengers, Monterey, California 93940. 1989. Paperback, 7" x 9", 112 pages, 283 photographs. Price: $21.50.

Although the photographs are approximately 3 x 3 inches, they are clear, sharp, and the color is excellent. Most of the living specimens are pictured in their marine habitat. Reportedly thousands of species of invertebrates inhabit the Gulf. From them the selection of the 283 species in this book represents nine phyla and effectively shows the diversity of invertebrate forms in the Sea of Cortez, one of the richest areas in the world for marine life.

Alex Kerstitch is a Research Associate in Marine Science at the University of Arizona and coauthor of "Reef Fishes of the Sea of Cortez" as well as an award-winning photographer. Three major contributors authored sections of the book: Hans Bertsch, whose publications include "Hawaiian Nudibranchs," Ronald H. McPeak, coauthor of "The Amber Forest" and L. Yvonne Maluf whose many papers on echinoderms include a report on the classification of eastern Pacific species.

The foreword for the book was written by Richard C. Brusca, whose own book, "Common Intertidal Invertebrates of the Gulf of California," (1980) is widely used by those interested in the fauna of the Gulf and was the result of intensive study for many years.

A short introduction is followed by an explanation for using the book, mention of each phylum and a short glossary of technical terms. The references include only well-known books and papers.

The text for each species is placed conveniently adjacent to the photograph and the binomial Latin name is given. Both author and date are omitted. The common English name is included and if none was known a name was created which in some instances could cause confusion.

The text contains a brief description and includes size, distribution, habitat, and remarks. The latter two categories contain life history information gleaned from many sources as well as from the author's own experience and is a real contribution to our knowledge of this fauna.

This book is a valuable contribution to our knowledge of the marine invertebrates of the Gulf of California and I recommend it to all who dive or snorkel in the Sea of Cortez and those interested in the fauna of these waters.

Condensed from the review by
Barbara W. Myers in FESTIVUS
XXI(7):66-67, July 13, 1989.

THE WILDERNESS COAST

by Jack Rudloe. E. P. Dutton, 2 Park Avenue, New York, NY 10016. 262 pp.; $22.50. Illustrated with photos and drawings.

Rudloe describes his 30 years of adventure as a naturalist on Florida's Gulf Coast. He and his wife run the Gulf Specimen Company, which supplies living fishes and invertebrates to marine labs and medical research hospitals.

National Fisherman 69(6):64

UNDER ALASKA SEAS

by Lou and Nancy Barr. Alaska Northwest Publishing Co., Box 4-EEEE, Anchorage, AK 99509. 208 pp.; $14.95.

A field guide to the marine invertebrates of Alaska's shallow, coastal waters with 241 color underwater photos and a text of identifying information for each species. The animals are organized according to phylum, class and species.

National Fisherman 69(6):64

SEASHELLS OF SOUTHERN ARABIA

by Donald and Eloise Bosch. 1989. 95 pp., many color photographs. Price: $18.00 plus postage, available from the authors, 93 Ridgeport Road, River Hills, Lake Wylie, Clover, South Carolina 29710, USA.

The authors are well-known conchologists who lived and worked in Oman for many years, discovered nine species new to science, and published an excellent book, Seashells of Oman, in 1982. This new book promises to live up to its billing as "an identification guide to the most commonly found shells in Southern Arabia." Included are 182 gastropods, 1 scaphopod, 68 bivalves, and 2 cephalopods, for which are given genus and species names with author and date, adult size range and locality, a paragraph of description, and a photograph of generally excellent quality. The authors have intended to provide a "relatively inexpensive reference manual to assist collectors living in" Southern Arabia.

In addition to the basic text and photographs, the authors have included a short bibliography, an introductory section that discusses the classification of mollusks, two pages on "cleaning and travelling" and an index to the illustrated species.

Two additional features set this book apart from the ordinary identification guide — 14 pages entitled "Shoreline Safety" which give a wealth of data on the potentially dangerous animals, including sharks, urchins, and cone shells, which can be encountered by the collector — and the fact that this section, the index, some of the text, and the scientific name are given in Arabic — certainly an important feature for many local collectors.

It is important to call the reader's attention to two factors: there are some name changes from the authors' 1982 book, and the placement of the photographs opposite the text rather than above or below it. This last practice could cause the reader some consternation at first, but adjustment will come readily.

This book is a worthy effort and a fine addition to the conchological library.

Walter E. Sage

COMPENDIUM OF LAND SHELLS

by R. Tucker Abbott, 1989. viii + 242 pages, 2,000 color plates, 8-1/2" X 11" hardbound. Price: $56.00 plus postage of $2.00 domestic or $4.00 foreign from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. No discounts for clubs or multiple orders.

Over 2,000 species, representing 80 families, are illustrated in color, each with information on size, habitat, geographical distribution, popular and scientific name, date of publication and best known synonyms. The 900-entry bibliography is in three sections: General, Geographical, and Taxonomic. In addition to the index to popular names and the geographic literature, there is a 3,200-entry scientific index to family, generic and species names.

Publication in late 1989 or early 1990. Order early if you wish a numbered copy personally autographed by the author to you.

From the publisher's announcement.

NOTES AND NEWS

GLORIA MARIS, published by the Belgian Society for Conchology, is bilingual — English and Dutch. We have received two issues for our library: volume 27(5)(6), December 1988, Red Sea Malacology V: Revision of the *Phenacolepas* of the Red Sea, with 25 figures; A New *Conus* Species from off Cape York, N. Australia (*Conus adami* n. spec.). Volume 28(1), March 1989, Red Sea Malacology: *Trochus wilsi*, A New Species Probable Endemic to the Red Sea; On the True Identity of *Conus coelinae* Crosse, 1858 and Description of *Conus pseudocoelinae* new sp.

SANIBEL'S MUSEUM PROJECT: Five of America's outstanding scientific experts on mollusks have agreed to serve as the Science Advisory Board to the Shell Museum and Educational Foundation, the organization in process of establishing a shell museum on Sanibel Island, Florida. They are: Dr. Ruth D. Turner of Harvard, the leading scientist in the world of shipworms and other burrowing bivalves; Dr. Emily H. Vokes of Tulane, well known for her research in fossils from Florida shell pits; Dr. Fred G. Thompson, curator of mollusks at the Florida Museum of Natural History and specialist in the land and freshwater shells of Florida; William G. Lyons, senior malacologist at the Florida State Marine Research Institute who is particularly knowledgeable about the marine shells of the Gulf of Mexico and West Florida, and, fifth, Dr. M. G. Harasewych, associate curator of mollusks at the Smithsonian Institution.

Dr. R. T. Abbott, the founding director, writes: "We are honored and very fortunate to have such shell experts willing to serve on our Science Advisory Board. Though our emphasis will be on education, public exhibits and informational services, we need the guidance of these experts in planning the museum and its future activities."

ALBERT TAXSON COLLECTION: During the summer we received word from Mrs. Albert Taxson that her husband's books, papers, and shells were in the process of being dispersed to interested individuals at their own appraisals.

We regret our premature announcement in NOTES 310.2 that the collection would be accessed by the American Museum.

SNORKELING, by John R. Clark, is described as "a good how-to beginners' book for all those about to become underwater naturalists." $7.00 from American Littoral Society, Sandy Hook, Highlands, New Jersey 07732.

AMERICAN LITTORAL SOCIETY'S 28th Annual Meeting will be held at Mystic, Connecticut, October 13-14-15, 1989, during a full weekend of field trips, informal gatherings, and a big buffet dinner at the Mystic Marinelife Aquarium on Saturday evening. Write for details to the ALS at Highlands, New Jersey 07732.

ALS is involved with care of the coast as well as marine fauna. Their publications are Underwater Naturalist, and Coastal Reporter. They schedule many activities. Membership is now over 8,000. Dues: $20.00 per year.

MAPPING THE DEPTHS. Browsing our clippings, we found this one from Sea Technology 27(5):47, May 1986: (Road maps for ALVIN?)

> Secretary of the Interior Donald P. Hodel recently released a first-of-its-kind atlas of the deepwater seafloor off the west coast. He said the 152-page work will help delineate potential energy and mineral resource targets and also reveals dozens of previously unmapped submarine volcanoes, landslides, faults, and other features.
>
> Titled the "Atlas of the Exclusive Economic Zone, Western Conterminous United States," it represents nearly 650,000 square kilometers of ocean floor — nearly the size of a waterlogged Texas — as viewed by the British Institute of Oceanographic Sciences' GLORIA sonar images that were computer-enhanced by U.S. Geological Survey engineers. Data were gathered aboard the British research ship Farnella during a three-month cruise that ended August 1984. Similar maps were made from the Farnella and GLORIA last summer in the Gulf of Mexico; another cruise is scheduled offshore Alaska starting this July.

BROWN TIDE. The "brown tide" algae that was responsible for the decimation of the scallop beds (Argopecten irradians (Lamarck, 1819) of our eastern coast has seemingly dissipated. That's the good news, although we might be cheering too soon. The bad news is that on August 5th state health officials in Maine issued a "contaminated clam alert" for mahogany quahogs (from that state) (Arctica islandica (Linné, 1767), two New England health agencies having found that the clams contained abnormal levels of a potentially deadly toxin.

SEA PANCAKES, BEACH HEDGEHOGS, AND SAND SHILLINGS. These are lovely descriptive names for those echinoderms that we generally lump all together to call them "Sand Dollars". Frank Steimle, biologist with the National Marine Fisheries Service, describes the behavior and biology of these living fossils in his article with the above title in the June Underwater Naturalist 18(2)7-9, and gives data from which we quote:

> There are four species of sand dollars common to the shallow marine waters of North America. The most widely distributed is the northern sand dollar, Echinarachnius parma, found on both the Atlantic (from Cape Hatteras to Labrador) and the Pacific (from Japan to Puget Sound) but not in the connecting Arctic Ocean. Below Hatteras and into the Gulf of Mexico and the Caribbean, one of the "keyhole" sand dollars, Mellita quinquiesperforata, is the common inshore species, although it occurs as far north as Cape Cod. Another species found in southern Florida and into the Gulf of Mexico is the "notched" sand dollar, Encope michelini, which is similar to Mellita except that all but one of the lunules are usually open at the edge of the test. Similar species are found on both coasts of Central America. On the Pacific coast, the common inshore sand dollar south of Alaska to Baja is Dendraster excentricus. With this species the star pattern on the test is offcenter and its test is subcircular.

(The four species are beautifully illustrated with drawings excellent for identifications.)

CHICHIMECA, EARLY SHELL TRADERS AND ARTISANS

Helen DuShane
15012 El Soneto, Whittier, California 90605

Few know that an enterprising group of aborigines in the northern part of the state of Chihuahua, Mexico, were very early shell collectors. In 1960, Dr. Charles DiPeso, archaeolist and Director of the Amerind Foundation in Arizona, with mostly native labor, unearthed a ruin in northern Mexico which previously had been visited by Lieut. Frederick Schwatka in the latter part of the nineteenth century. It is from Schwatka (1893) we learn "...the town of Casas Grandes...takes its name, meaning 'big houses' from the ancient ruins situated in its suburbs, and comprising the largest found in this part of Mexico..." He further states of the natives, "They were a wonderful and interesting people, one that would repay careful study, even from the little evidence of their existence that is left."

Casas Grandes was an urban center of an Indian civilization that flourished between 700 A.D. and 1040 A.D.; the city covered 260 acres. Only one eighth of it was excavated by Dr. DiPeso and his staff of workers and yet shells in the millions were recovered. This is not only the largest deposit of artifact mollusks ever recovered, but being the nucleus, it forms the distribution center of all similar artifacts found in other excavations in the southwest.

Therefore, we can say that the early Casas Grandes inhabitants, through their enterprise, established the largest distribution center for shell artifacts that has ever been known. There was a vast frontier market which absorbed their products. They established and protected a trail and communications route running roughly E-W over the Sierra Madre for a distance of some 400 km to the Gulf of California. Two large integral warehouses in the west arm of the high-rise apartment complex offered further proof of the importance of shell trade in the life of the Chichimeca, a name used by DiPeso for these people.

Apparently a system of forced labor was utilized in the working of shells assembled by them. Workers were housed in cell-like rooms with low ceilings, each cell harboring a specialty. In one room, a worker, or workers, fashioned the huge *Strombus galeatus* into trumpets. In another cell, workers fashioned *Conus* of several species into tinklers for the dancers to wear around waist or ankles. The very small shells of *Nassarius iodes* and *Nassarius moestus* were made into strands of beads. The most cunning workers fashioned the shells of *Spondylus princeps*, reminiscent in color of the precious coral (Isis) found only in the Mediterranean Sea, into small nodular beads.

Dr. DiPeso labored for three years at Casas Grandes, through a grant from the Mexican government, with the provision that for a limited time he might bring back all the artifacts found to the Amerind Foundation at Dragoon, Arizona. One could only gasp at the multitude of shells assembled here. Fortunately, I had the opportunity to work with them for a week, making species identification of the entire collection. Of the 3,909,096 shells recovered, 3,821,051 were worked. There were 14 wooden apple boxes of tinklers (Conus); 14 similar boxes of Nassarius, 3,437,203 of them; 41 Strombus trumpets, some inlaid with turquoise and mother-of-pearl, others incised with patterns, usually of frogs. Most of the shells, almost 4 million of them, came from the west coast of Mexico.

Chichimeca was a term applied by DiPeso to the aborigines of the area. Gran Chichimeca territory extended from the Pacific Ocean on the west, from the Tropic of Cancer on the south at about 23°27'N, and to the north to 38° N latitude. The province runs southward through southern Arizona, down into the states of Sonora and Chihuahua. Caravans traveled from Chichimeca to Mesoamerica trading diverse objects such as furs, bone, medicinal plants, colored paints, salt, coastal shells, minerals, and brilliantly colored birds (macaws).

Shell accounted for 98.4% of the raw material used to manufacture ornaments. Shells, principally from the Gulf of California, were trafficked some 400 km or 300 air miles over the Sierra from the Sonoran coast. Volumes of unstrung shell jewelry ornaments were found in the form of beads, bead pendants, strand dividers, tinklers, all intended to be parts of larger ornamental compositions such as necklaces, bracelets, earrings. The artisans utilized some 70 species of marine mollusks and one land snail. Of the 70 species involved, all were intertidal species from the Gulf of California except for four species dealt with separately in this paper. The material is listed in DiPeso (1974, vol. 6).

The degree of expertise varied considerably, from the simple perforated whole shell to that of exquisite tiny red crosses fashioned from the hinge of the bivalve, Chama echinata. Sometimes whole shell ornaments were dyed a blue-green, or sometimes used as shell inlay on a larger ornament. In shape, shell pendants were square, triangular, ovoid and circular. The shell craftsmen often removed not only the spire but also the columella of gastropods like Oliva and Conus. This operation made the mollusks ring when they touched one another in rhythm with a dancer's body and were sometimes dyed blue. They were attached in bunches to dance wands, as rows of fringe on dance skirts, or as noisemaking girdles, or as anklets. About 500 artifacts of shell were designed as arm bangles, wrist bracelets, and finger rings. The arm forms were modified by cutting away the center of a large bivalve, leaving an outer margin ring. Sometimes they incised the umbos in the likeness of animal faces or painted them blue or red, rarely they covered the entire outer surface with layers of a cloisonne-like design. Women sometimes wore as many as 26 arm bracelets on one arm.

Surprisingly, among the many Panamic mollusks a piece of worked Haliotis fulgens (green abalone), about 4 inches long and 1 1/2 inches wide (use unknown) and a drilled pendant of Haliotis cracherodii (black abalone), one inch long by 1/16th of an inch wide, indicate there must have been some barter between the coastal Indians of the Californias and those of Casas Grandes. This was indeed a surprise as abalone does not inhabit the Gulf of California, but it strengthened the growing feeling that these people were masters at trading mollusks. Proof is indicated here that trade went on between people of the mainland of Mexico and the outer coast of Baja California; proof that the aborigines of Baja California collected mollusks, not only for food, but for barter.

Haliotis fulgens does not occur today in the waters of the Gulf of

California. Nor does it occur as a fossil in the early kitchen middens of the Indians or in fossil deposits bordering the Gulf of California. Its range is in the Pacific coastal waters of central Oregon south to the central portion of Baja California. According to Ronald Ives (1961), "Paleontological studies show that the range of the abalone has been quite stable in Pleistocene and Recent times, despite known changes in sea levels, ocean currents, and ocean temperatures, particularly during the Ice Ages. The first Californians of whom we have records found the abalone in about the same places where we find them today. This is known to be true, for abalone shells and shell fragments are found in the oldest middens of the California coasts."

About 300 years ago (circa 1687) Father Francisco Eusebio Kino, at the request of Philip IV, King of Spain, explored the land and established a chain of missions which, like beads on a string, reached as far north as Tucson, Arizona. He brought religion, agriculture, and domestic meat production to the land, but more importantly, he proved that Baja California is not an island. Known as "The Apostle to the Pimas," Kino, early in his work, noted there was extensive trade of the green abalone shell (Haliotis fulgens) among the Indians. He saw that the aborigines used them as drinking cups and as other useful objects. In December 1684, while on the west coast of Baja California (west of the Mission of San José de Comondú at approximately 26°03'N; 112°17'W) as a cosmographer for the Antondo Expedition, he observed the Indians utilizing a certain shell of brilliant iridescent shades of blue-green. It was the abalone, Haliotis fulgens. When he questioned the Indians regarding their origin they gestured and drew maps in the sand indicating they had procured the shells in trade with other Indians a long walk to the north, then west over high mountains, a journey of 10 to 12 days on foot.

Bit by bit for almost 15 years Father Kino gathered information until he thought he had enough evidence to confirm his conclusion that Alta and Baja California were a continuous land mass, with no water course separating them, and he so reported to Charles II, then King of Spain. Bolton (1948) reports, "This information was received dubiously by the throne." Actually it was many years before maps were changed to agree with Father Kino's conclusions. Today, our maps of the area differ little from the beautiful and precise map Father Kino drew and dated 1701, "Passo por Tierra a la California."

Although Kino's interest in shells cannot be considered a hobby, or a profession, he collected as assiduously as any present-day conchologist. His work reflects the earliest historical record of shell collecting on the west coast. Yet it is a curious fact that only two shells have been named for him, one a land snail, Holospira kinonis, Baily and Baily, 1940 and the other the marine species Cerithiopsis kinoi Baker, Hanna and Strong, 1938.

Historically, extraneous material is gathered that indicates the aborigines collected shells for food and personal adornment long before the European Caucasians arrived. The beaches of Baja California offered a rich and varied fauna for their use. We know Indians traveled surprisingly long distances to enable them to have a change of diet from forest and desert plants and animals, to shellfish and crustaceans. A personal interview with Delfina Cuero, a Diegueno

Indian (September 5, 1968) revealed that as a young girl she accompanied her family on foot, as her ancestors before her had done, on more or less regular summer trips from the vicinity of Tecate, Baja California Norte, to San Felipe Bay on the shores of the Gulf of California in order to obtain fish and clams to eat. She reported that two edible clams were common on the sand flats of San Felipe Bay and with an educated guess one can surmise from her description that they were *Dosinia ponderosa* and *Chione cortesi*. When more shellfish was taken than they could reasonably eat at the time, the Indians would clean, wash and cut the rest and spread on the rocks to dry. A story told by this same Indian woman (from Shipek, 1968) is worth repeating here. "There was a story about the *Olivella* shells; they were babies that fell from the stars. They used to say, 'When the dipper in the sky (the Big Dipper) gets too full, it is dumped out. Then these small shells fall all around near the ocean'.

While it is thought that the majority of the shell artifacts came from the Guaymas, Sonora, Mexico area, two species obviously were collected much further south, in the vicinity of Nayarit, Mexico. *Chama echinata* Broderip, 1835, is a common bivalve on the beach rocks off the state of Navarit. It can be taken much less commonly as far north as Mazatlan. Archaeological specimens of *Persicula bandera* Coan and Roth, 1965 (a pint of them) were sent to Dr. A. Myra Keen for identification. The type locality for these is Banderas Bay, Nayarit and was the only locality where they had been taken alive. Through a strange coincidence, Dr. Keen was on a collecting ship anchored in Banderas Bay. One of the young Mexican crewmen begged to be allowed to try SCUBA. With a small amount of air he descended to approximately 15 feet. From the substrate he snatched two handsful of the muddy substrate. Returning to the surface, he deposited the mud on the sorting table. From it Dr. Keen extracted small *Persicula* she had never seen before and she took them back to Stanford. These proved to be the same species, undescribed, that had been sent to her from Casas Grandes. Subsequently, Coan and Roth described the species as *Persicula bandera* for the bay in which they had been found. The specific name "bandera" comes from the Spanish word meaning flag. The bay was so named by the Spaniards when they were welcomed by the Indians waving flags and greeting them at the shoreline of the bay.

When excavations of one-eighth of the extensive city of Casas Grandes had been completed by DiPeso and his staff, the ceramics, bone, stone and shell material was brought to the Amerind Foundation located outside Dragoon, Arizona for further study and analysis. After the artifacts had been examined, measured, identified and tagged they were returned to Mexico and may be seen today in the National Museum in Mexico City.

LITERATURE CITED

Baily, Joshua L. Jr. & Ruth I. Baily. 1940. A new Urocoptid Mollusc from the State of Sonora, Mexico. Nautilus 53(3):94-95.

Baker, Fred, G. Dallas Hanna & A. M. Strong. 1938. Some Mollusca of the families Cerithiopsidae, Cerithiidae & Cyclostrematidae from the Gulf of California and adjacent waters. Proc. Cal. Acad. Sci., 4th ser. 23(15)217-244, pls. 17-23.

Bolton, Herbert E. 1948. Kino's historical memoir of Primería Alta. Cleveland (Clark); Berkeley (University of California Press) vol. II, 329 pp.

Coan, Eugene V. & Barry Roth. 1965. A new species of Persicula from West Mexico. Veliger 8(2):67-69, pl. 12.

DiPeso, Charles C. 1974. Casas Grandes; a fallen trading center of the Gran Chichimeca. The Amerind Foundation, Inc., Dragoon, Northland Press, Flagstaff, Arizona, vols. 1-8 incl. (for the volume on shells, see vol. 6).

Ives, Ronald L. 1961. The quest of the blue shells. Reproduced from Arizoniana II(1):3-7 with new cover format.

Schwatka, Lt. Frederick. 1893. In the land of Cave and Cliff Dwellers. Cassell Publishing Co., New York City. 385 pp.

Shipek, Florence. 1968. The autobiography of Delfino Cuero as told to Florence C. Shipek, interpreter Rosalie Pinto Robinson. Dawson Book Shop, Los Angeles, California. Baja California Travel Series, no. 12. 67 pp., 1 map, 1 photo.

Reprinted from FESTIVUS
XXI(6):52-57, June 1989

AMU/WSM AND COA MEETINGS

The times and places of last June's conventions were nicely arranged so that delegates could easily attend both on one trip to California. The Conchologists of America met in San Diego June 19-23, and the combined meeting of the American Malacological Union and the Western Society of Malacologists met in Los Angeles June 25-30. Reports were enthusiastic: "The meetings of both COA and AMU/WSM were excellent. ... The talks were good at both sessions and the other events and banquets were great fun." Jean Cate wrote a glowing account of the COA meeting (see next American Conchologist) and both conventions were well reported in the July issue of the San Diego Shell Club's publication, The Festivus.

Next year the American Malacological Union will meet at Woods Hole, Massachusetts, at the Marine Biological Laboratory, June 3-7. The laboratory is famous for its research on mollusks. We can look forward to most interesting programs and events. Mark the dates.

The Western Society of Malacologists will hold their 1990 meeting at the University of Washington, Seattle, Washington. In 1991 there will again be a combined AMU/WSM meeting to be held again in California, at the University of California at Berkeley.

The Conchologists of America will hold their 1990 meeting in Melbourne, Florida, July 8-13. Watch for details in future issues of NYSC Notes.

PIGMENTATION INFLUENCED BY DIET

We think it was a well-known nutritionist who said, "You are what you eat." Too many carrots and your skin turns yellow. Eat your bread crusts and your hair will get curly (Sorry for that one, readers). Well, there's truth in the adage, at least in some of our mollusks:

Several years ago we visited the marine laboratory at Woods Hole and were shown an experiment that was in progress. Polinices duplicatus had been collected and divided into two lots. They were in wooden trays, or shallow bins, with running sea water. Each lot was fed a different diet. With one diet, the color of the Polinices' callus became a definite brown. In the other lot, with a different diet, the color of the callus modified to lavender. A switch in the diet, and the colors again changed. I'm sorry that I have no documentation on the menus. All I can remember is that one lot was fed Mytilus edulis.

In her report of the COA meeting last June, Jean Cate describes a presentation by Dr. David Leighton on this same subject of pigmentation. She writes:

> Dr. David Leighton spoke on the fascinating subject of "Abalone Culture," a mariculture project being developed along with oysters, clams and other edible forms of sea life to feed our future overpopulated world.
>
> I recall early experiments in the 60's which demonstrated that isolating a few abalones and feeding them nothing but yams eventually resulted in a broad orange stripe on the outer edge of the shell. At the time there seemed no known use for manipulating the appearance of any shell. Things are different now.
>
> Dr. Leighton showed us how modern mariculturists keep the baby abalones isolated in tanks from the veliger through youth. A unique coded shell pattern for each "farmer" is worked out through the abalones' carefully controlled diet. At four years the half-grown animals are released into their natural ocean environment to complete their growth to commercial size at about ten years or so. By now, the simple yam stripe has been adapted so that diet-produced stripes of different colors, widths, and arrangements permanently "brand" the animals as they mature, providing an immutable trademark which gives the growers a means of apprehending future abalone rustlers, and without doubt founding a new branch of conchology for collectors of a different stripe. It also emphasizes the dictum that there's no such thing as "useless" knowledge, especially in science; sooner or later something, good or bad, will come of it.

Sorry to disappoint you, but that striped abalone shell you picked up on the Pacific coast is NOT a new species. Nor is that little Mercenaria species with a reddish umbone you found on the south shore of Long Island: A nearby clam-raising company dips its Mercenaria mercenaria spat into a harmless dye that penetrates the shell and lasts indefinitely. The color is their mark, to identify their stock if taken illegally from their leased acreage in Great South Bay.

TWO "HAIRY TRITONS"

Oregon's new state shell, Fusitriton oregonensis (Redfield, 1848), the Oregon Triton, because of its bristly epidermis is also called, quite logically, the "Hairy Triton."

Cymatium pileare (Linné, 1758) of our eastern coast has a periostracum covered with fine hairs, and is known as the "Hairy Triton."

Don't get them mixed!

Our treasurer has received the new supply of New York Shell Club pins. The price: $3.50 in person, $3.75 by mail.

NYSC NOTES No. 312 Enclosure

SAN DIEGO SHELL CLUB

THE ANTHONY D'ATTILIO STUDENT RESEARCH GRANT IN MALACOLOGY

As part of its committment to the continued study of mollusks, the San Diego Shell Club is pleased to announce the Anthony D'Attilio Grant to support student research in malacology. This one-time award is made possible by a generous donation from Annita and the late Morris Levine, at whose request it is called the Anthony D'Attilio Grant.

ELIGIBILITY

1. Applicant must be a full-time student in a formal graduate degree program (Master's or Doctorate).
2. The thesis or dissertation topic must further knowledge of the systematics of the Mollusca. It may involve research on marine, land or freshwater mollusks worldwide. Research currently in progress or beginning in the 1990-1991 academic year will be considered.
3. The grant is available to candidates studying in U.S. academic institutions.

REQUIREMENTS

The following documents are required for each application:

1. A proposal, limited to three pages, which discusses the research project and details the work to be aided by this grant and its malacological significance.
2. A budget which outlines how these funds will be used.
3. A curriculum vitae or resume.
4. A letter of recommendation from the applicant's thesis advisor.
5. A list of grants and amounts which currently are being received or are anticipated to be received in the 1990-91 academic year.
6. An overview of the research project is to be sent or presented to the San Diego Shell Club on completion of the project.

PROJECTS TO BE CONSIDERED FOR FUNDING

Funds are available for the following items:

1. Purchase of research materials such as chemicals, photographic supplies, field collecting equipment, dissecting and optical accessories, computer supplies, etc.
2. Electron microscope usage fees and mainframe computer time.
3. Travel costs to visit museums or institutions which have collections or resources vital to the research topic.

AWARD

A single research grant of $1,000 is available.

APPLICATION DEADLINE

Completed applications must be received no later than 1 December 1989.
The award will be announced by 15 January 1990.

Please send applications to:

Anthony D'Attilio Grant
San Diego Shell Club
3883 Mt. Blackburn Ave.
San Diego, CA 92111

For further information, contact Carole Hertz (619) 277-6259

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; Full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1989-90

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 10, 1989
October 8, 1989
November 12, 1989
December 10, 1989
January 14, 1990
February 11, 1990
March 11, 1990
April 8, 1990
May 6, 1990 (1st Sunday)
June 10, 1990

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meeting.)

SUNDAY, DECEMBER 10, 1989, at 2:00 p.m.:

RARE AND BEAUTIFUL SHELLS,
a slide presentation by
Walter E. Sage, AMNH.

JANUARY 14, 1990 — Program to be announced.

FEBRUARY 11, 1990 — Program to be announced.

Best Wishes in this Holiday Season

CONTENTS

		Page
Highlights of Recent Meetings	Milton Werner	2
Schedule of Shell Shows & Other Events	Donald Dan	4
Obituaries:		
Corinne E. Edwards	Dorothy Raeihle	6
Edward M. Slater	D. Raeihle, W. Sage	6
Mathilde P. Weingartner	Dorothy Raeihle	13
Collections of:		
Edward M. Slater	Walter E. Sage	6
Clare K. Stout	William K. Emerson/DR	7
Mary Saul	Mary Saul	15
Publications:		
Cowries & Their Relatives of Southern Africa, by Liltved. Review.	Walter E. Sage	7
Hawaiian Epitoniidae. Announcement.	Helen duShane	8
Publisher's address for DeJong and Coomans Marine Gastropods ABC		8
North American Freshwater Snails, by J. B. Burch. Announcement.	Festivus	9
Shells - Jewels from the Sea, by M. G. Harasewych. Outline review.	Publisher, RTA	9
Shells - Nature in Photography, by R. T. A. Outline review.	Publisher, RTA	9
Of Color & Camouflage: Octopus bimaculatus observation.	Hanlon and Forsythe	10
Controlling Shell Color in Giant Clams	G. A. Heslinga, HSN	10
The Case of the Zebra Mussel	Raeihle; Fred Snyder	11
Mathilde P. Weingartner (In Memoriam)		13
Sea Coral a Bone Substitute?	Anonymous	14
Letters from Mary Saul	Mary Saul	15
Miscellaneous Notes: 12th State Shell, A case of Precedence, Exchange invited by collector in Uruguay		16

HIGHLIGHTS OF RECENT MEETINGS

MAY 7, 1989: Treasurer Theta Lourbacos reported that the April auction had netted $2,114.48, of which about 25% will be donated to the William E. Old Malacology Fund.

President Al Scarpetti reported that Mathilde Weingartner was recuperating from a broken clavicle, and an address was posted where Tillie could receive cards and notes. He also reported that, as Nancy McTiernan would be moving to Washington, DC, the office of corresponding secretary would be left vacant. Rae Varga kindly volunteered to be a candidate for the position.

The speaker was Nick Katsaras, who prefaced his talk by displaying and commenting on an article clipped from the St. Petersburg (FL) Times about our member Ethelyn Woodlock and her work. Included was a color photograph of her painting "Please Forward" which had been accepted into the permanent collection of the National Museum of Women in the Arts, in Washington, DC. Nick also drew attention to two newspaper articles on Selma Lawson and added reminiscences of his acquaintance with her.

Nick's subject was a selection of shells of unusual interest, with a display of specimens. Among them were Umbraculum indica, a Conus ficulinus that measured 90 mm, Conus striatus, and two Nerita peloronta notable for their great size. He also showed a copy of the November 1988 issue of National Geographic Magazine in which is a photograph of a lobster breaking the shell of a Pleurotomaria. Nick, who is a Marginella enthusiast, then showed and commented on a series of photographs of shells of that family, noting that of the 540 or more species, the best are from west Africa.

The door prizes were Marginella adansonia, won by Eli Horowitz, M. elegans, won by Larry Potter, and M. rosea, won by Al Scarpetti.

Milton Werner, Recording Sec'y

JUNE 11, 1989: The treasurer's report for May and for the year, showing a balance of $1,599.91, was read and accepted. Treasurer Theta Lourbacos also reported that a new supply of Club pins had been received, and that they would sell for $3.50 in person or $3.75 by mail.

The first order of new business was the annual election of officers. President Al Scarpetti noted that Rae Varga, who had graciously volunteered to be a candidate for Corresponding Secretary, was the only non-incumbent on the slate. It was moved that the incumbent officers, and Rae, be elected by a show of hands. The response was unanimous.

Al announced that the subject of the guest speaker for October would be "The Great Barrier Reef." For November he suggested a visit to the New York Aquarium, and the response was favorable. He then read a letter from Dr. William K. Emerson of the American Museum's Department of Invertebrates, thanking the Club for its recent donation of $554 to the William E. Old Malacology Fund. This figure represented a percentage of the income from the April auction.

The guest speaker was Gertrude H. Moller, who was a founding member of the Jacksonville (Florida) Shell Club. Her subject was "My Wonderful World of Shells." She noted that since the invention of the printing press an estimated 4,000 books and 91,000 papers and articles dealing with shells have been published.

With slides, some made by Dr. Harry Lee, and commentary Gertrude traced the history of shells in decoration, commerce, and as a medium of exchange. Her photographs included postage stamps from Liberia picturing shells, shells as worn on costumes from South America and the Pacific islands, and as used in symbolism. Other slides covered the role of shells in design, as elements or inspiration. Also shown were some slides made at the 50th Anniversary Sanibel Shell Show, plus some of outstanding shellcraft. A display of shells and postage stamps completed her presentation.

Milton Werner, Recording Sec'y

SEPTEMBER 10, 1989: Leon and Ruth Juster were welcomed back after a long absence due to illness. Also welcomed were new members Doreen Potoyk and Loretta Takoushian, and visitor Phyllis Martignani.

President Al Scarpetti circulated the current address of Tillie Weingartner, who is staying with relatives in New Jersey. He then announced that, as Room 419 will not be available on October 8th, it was decided to move the October meeting to the 29th. He also announced that the November meeting will consist of a trip to the New York Aquarium, where we will meet at 2:00 p.m. Admission will be $3.00 per member, and the Club will pay a fee of $60.00 for a one and one-half hour behind-the-scenes tour. Details of these two meetings are to be mailed to local members.

The door prizes were a Pecten pallium, won by Doreen Potoyk, a Voluta dufresnei, won by Ed Cowles, and an Astraea undosa, won by Phyllis Martignani.

The program was presented by members showing recently acquired specimens and talking about their recent activities. Walter Sage brought shells, received from Helen Lorenz, that are from Uruguay. They included Volvarina patagonica, Vasum cassiforme, Adelomelon magellanica and Trophon geversianus. Walter also showed 17 lots of deep-water shells taken from fish stomachs, in catches from Maine and Alaska. These had been received from Kevin Kelly.

Ed Cowles brought in the book by Dr. Charles DiPeso on the Casa Grandes Indian civilization that was referred to by Helen DuShane in her article which was reprinted in the September issue of NYSC NOTES. The chapter illustrating the shells that were worked by the Indians was highly detailed and most interesting.

Theta Lourbacos, who in July had visited her daughter who lives in Alaska, displayed a brochure on the iceworm, Mesenchytraeus solifugus, 3/4" long. which is found on glaciers at 32° F, where they live on algae and pollen blown onto the ice. They have also been found in Siberia, Europe, and Greenland. They die if the temperature reaches 40°. Theta also commented that, due to the Prince William Sound oil spill, commercial salmon fishing was banned this year. Private fishing was allowed, and hordes of people fought for choice positions, thus giving rise to the term "combat fishing." Theta reported that her daughter was now in northern Alaska, helping to monitor the whale migration to Baja California.

Doreen Potoyk described having found a living Paper Nautilus, Argonauta argo, on the beach at Pompano Beach, Florida. It was 4" across, and the octopus slid out of the shell as she picked it up.

Nick Katsaras displayed specimens of Pomacea paludosa, the Florida Apple Snail, and Faunus ater, an Asian freshwater snail, which he had found in excellent condition at a Third Avenue flea market. He also showed a gem specimen of Conus dusaveli, originally described from Mauritius, which had been very rare until taken in some numbers by tangle nets in Philippine waters. Nick also brought specimens of Trivia millardi from South Africa, two polished mussels and four shark's teeth purchased in the Atlantic City, New Jersey area, and a single valve of Argopecten irradians that he had collected at Atlantic City on November 22, 1988 and which he valued at $110, because that was the amount he had lost in the casinos that day.

Milton Werner, Recording Sec'y,
from notes made by Walter Sage.

COMING EVENTS

Donald Dan kindly provided us with his list of 1990 Winter and Spring Shell Shows and Events, which we give below.

Your attention is called to the date of the Jacksonville Shell Show which has been changed for this year from the usual last weekend in July to the weekend of June 22-24. Also, the Broward Club (Fort Lauderdale) is making a one-time change from their usual February date to that of July 5-7.

LATE NEWS: The Garvies Point Museum in Glen Cove is planning an exhibition of shells to open in mid-March.

1990 WINTER & SPRING SHELL SHOWS & OTHER EVENTS

Jan. 19-21 Astronaut Trail Shell Show, Melbourne, Florida
Jim & Bobbi Cordy
385 Needle Boulevard
Merritt Island, Florida 32953 (407) 452-5736

Jan. 19-21 Greater Miami Shell Show, North Miami, Florida
Gayle Motes
7305 N.W. 59th Street
Tanarac, Florida 33321 (305) 726-5190

Feb. 2-3 Naples Shell Show, Naples, Florida
Anna V. Szent-Kirallyi
811, 98th Avenue North
Naples, Florida 33963 (813) 597-6115

Feb. 16-18 Sarasota Shell Show, Sarasota, Florida
June Bailey
813 Bayport Way
Longboat Key, Florida 34228 (813) 383-6657

Feb. 23-25 St. Petersburg Shell Show, Treasure Island, Florida
Bob & Betty Lipe
440 75th Avenue
St. Petersburg Beach, Florida 33706 (813) 360-0586

Mar. 1-4 Sanibel Shell Fair, Sanibel Island, Florida
Jean Hallstead
1077 South Yachtsman Drive
Sanibel, Florida 33957 (813) 472-9397

Mar. 8-10 Marco Island Shell Club Show VIII, Marco Island, Florida
Robert & Joan Scribner
1012 South Collier, #112
Marco Island, Florida 33937 (813) 394-0399

Mar. 16-18 Treasure Coast Shell Show, Stuart, Florida
Ted Jacaruso
1964 NW Pine Tree Way
Stuart, Florida 34994 (407) 692-0270

Mar. 30-Apr. 1 Central Florida Shell Show, Orlando, Florida
Kathy Sarkin
20620 Majestic Street
Orlando, Florida 32833 (407) 568-4237

Apr. 1-5 National Shellfisheries Association and the Shellfish Institute of North America, Williamsburg, Virginia.
Dr. Scott E. Siddall
Marine Science Research Center
State University of New York
Stony Brook, New York 11794 (516) 632-8668

Apr. 20-22 Greater Georgia Shell Show, Atlanta, Georgia
Bill & Bunny Fulton
3878 Granger Drive
Chamblee, Georgia 30341 (404) 451-3441

Apr. 27-29 (Tentative) St. Louis Shell Show, St. Louis, Missouri.
Jacob Gettleman
4032 Garden Lane
Granite City, Illinois 62040 (618) 931-1312

May 5-6 Long Island Shell Show, Freeport, New York
Jon & Vi Greenlaw
5 Etna Lane
Dix Hills, New York 11746 (516) 421-5235

June 3-7 American Malacological Union, Woods Hole, Massachusetts
Dr. Roger Hanlon
University of Texas, Medical Branch
Galveston, Texas 77550-2772 (409) 761-2133 or 761-2101

June 22-24 Jacksonville Shell Show, Jacksonville Beach, Florida
Nellie Hawley
11604 Surfwood Avenue
Jacksonville, Florida 32216 (904) 641-4606

June 23-24 IX Salon International du Coquillage, Lutry, Switzerland
Dr. Ted W. Baer
1602 La Croix
Switzerland (021) 393771 or 207371

July 9-13 Conchologists of America, Melbourne, Florida
John Baker
147 Hedgegrove Avenue
Satellite Beach, Florida 32937-2113 (407) 777-2116

CORINNE E. EDWARDS

We were deeply saddened to read in Miami's "Mollusk" of the passing of our friend and associate Corinne Edwards — "The Colonel" — at age 83. She had succumbed to problems several days after suffering a stroke.

Corinne was born, raised and educated in Massachusetts. She earned her high rank of Lieutenant Colonel in the United States Air Force, serving in both European and Pacific theaters. Approximately thirty years ago she removed to South Florida where she found her permanent interest in conchology, malacology, and other forms of marine life.

Corinne was generous with her time, labor, and knowledge, She was in demand by the schools, and she travelled and gave. No one can count the number of children to whom, over the years, she taught an appreciation of nature and the seashores. She will be greatly missed.

Dorothy Raeihle

EDWARD M. SLATER

It is with extreme regret and sorrow that we need report here the death at age 52, at his home on October 9th, of our long-time member Dr. Edward M. Slater, victim of an intruder.

Eddie Slater joined the New York Shell Club in the 1950's, when in his 'teens, and had early tutelage in the molluscan field from Karl Jacobson, with whom he kept in touch in later years. A biology major, he obtained his degrees from Lehigh and Columbia Universities and started his teaching career at Garden City High in 1962; since 1965 he taught biology at the Great Neck High School. In addition to his teaching he coached wrestling teams of this and other high schools and of the marine academy at King's Point (He was a medallist in his college years.).

His slim volume, "Basic Human Nature ... Revisited" (1977) is revealing of his philosophies and his talent for observation. We quote the closing line: "After all, the last lesson of knowledge is the wisdom that generates tranquillity and the action that promotes peace and survival."

Dorothy Raeihle

* * *

I first was contacted by Ed Slater in August, when he called to inquire about donating his mollusk collection to the American Museum of Natural History, and we arranged for me to visit him at his Port Washington home on September 13.

During this visit I examined the collection which contained largely self-collected specimens from Florida, the Caribbean, Israel, and several localities in the local area. There was reasonably good data with the specimens, especially those locally collected. I expressed interest in accepting the donation for the Museum, and we discussed the steps involved in donating a collection. All the necessary paper work was completed by September 27, when I again made the trip to Port Washington, and we loaded twenty boxes into my car. The shells now are awaiting accessioning and further processing.

I was truly shocked to hear of the tragic and untimely death of Ed Slater about two weeks after my last visit with him. We had not spent a great deal of time talking, but I found Ed an interesting and vital man, a man who had given much of himself to his chosen profession and a man who had obviously "enjoyed the good life." He spoke with enthusiasm and warmth of his teaching and coaching, and of his casting bronze sculptures. Those who knew Ed Slater will miss him and we mourn the passing of such a sensitive human and deplore the senseless violence that can so quickly bring an end to a creative and dynamic individual.

Walter E. Sage III, Scientific
Assistant, Dept. Invert., AMNH

THE CLARE K. STOUT COLLECTION

As was her wish, the entire shell collection of the late Clare K. Stout has been donated to the American Museum of Natural History. Dr. William K. Emerson announces that the collection, mostly self-collected, is a valuable addition to the mollusk collection, as it includes many specimens from such out-of-the-way places as the Galapagos Islands, New Caledonia, and little known spots visited by Mr. and Mrs. Stout on their travels.

The collection is much appreciated as the final gift of a lady who always gave strong support to the American Museum and will be long remembered.

WKE/DR

PUBLICATIONS:

COWRIES AND THEIR RELATIVES OF SOUTHERN AFRICA,

A Study of the Southern African Cypraeacean and Velutinacean Gastropod Fauna. By William Rune Liltved, 1989. 208 pp., 60 line illustrations, more than 550 color photos. Seacomber Publications. Price: $65 plus $4 UPS or $7 surface mail overseas. U.S. distributors: Mal de Mer, P.O. Box 482, West Hempstead, New York 11552.

One of the most beautifully and lavishly illustrated shell books produced in recent years, this volume provides the first account for the shell collecting public of the anatomy of members of the gastropod families Cypraeidae, Ovulidae, and Triviidae. Building on the data recorded in Sea Shells of Southern Africa (Kilburn & Rippey, 1982) and Cowries of the World (Burgess, 1985), Liltved gives a fascinating glimpse of the variability of endemic southern African Cypraea and describes and pictures all members of the Ovulidae and Triviidae known to inhabit this region. Table 1 lists important radular and anatomical characters of these families, showing that Cypraeidae and Ovulidae are closely related, as are the Velutinidae (more commonly known as Lamellariidae) and Triviidae (including Triviinae and Eratoinae).

The volume begins with a foreword, followed by contents, preface, acknowledgements, abbreviations, and materials and methods. A 31-page introduction covers external and internal morphology with exquisite anatomical drawings, developmental biology and biogeography, higher systematics, generic subdivision, systematics of endemic southern African taxa, and predation. Species accounts form the body of this book - 50 pages on Cypraeidae, 52 on Ovulidae, 45 on Triviidae. Eighteen of the 65 Cypraea species recorded from southern African waters are discussed in detail, as are 44 ovulids, 28 Trivia, and 4 Erato. Tables 2 and 3 list all Cypraeacean and Velutinacean taxa known from this region, showing the first southern African record and the southernmost distributional limit. Two Cypraea, 4 ovulids, and 4 Trivia are treated and figured, but not identified as to species.

Based on current knowledge of the morphology of included species, the genus Cypraea is used for all members of the Cypraeidae. Several genera are recognized in the Ovulidae, and only the genera Trivia and Erato constitute the Triviidae. Three species of ovulids are transferred to different genera and nine specific names in Ovulidae are listed as synonyms. Greater interest in the Cypraeidae is reflected in the fact that living animals are known for all 18 species except C. cohenae, C. cruickshanki, and C. lisetae, while the animals of many fewer species of Ovulidae and Triviidae are known.

Each species account includes data on the living animal, shell, natural history, distribution, and discussion. Differences between related species and variation within a species are indicated, and individual maps clearly show the range of each species. Dorsal, ventral, and lateral photographs are provided of each Cypraea and many ovulid and Trivia species, but only dorsal and ventral views are shown for Erato.

Collectors of these popular mollusk families are sure to find this a book well worth obtaining. Seldom enough do we get to see and study the animals of the shells we collect, and in this volume we have both superb photography and excellent science. There are only a few, very minor, typographical errors, and while this reviewer would have preferred to have a more complete literature citation with the species accounts and to have had type specimens illustrated wherever possible, these absences do not detract from the outstanding quality and usefulness of this book. This volume is a tribute to the many collectors and scientists who have shared information contained therein, and will serve to encourage others to make similar contributions to malacology.

Walter E. Sage

HAWAIIAN EPITONIIDAE

The Hawaiian Shell News is releasing its first Supplement in January 1990. Hawaiian Epitoniidae by Helen DuShane will contain 20 pages covering 26 species in 12 genera, and 5 new species first described in the Veliger, Volume 31 (3,4): October 1988. Forty-two photographs will make identification easy. The price has not yet been established but will be forthcoming shortly.

MARINE GASTROPODS FROM CURAÇAO, ARUBA AND BONAIRE

by DeJong and Coomans, 1988, price $42.50, announced in NYSC NOTES 312.3. We can now supply you with the address for ordering:
— E. J. Brill, P.O. Box 9000, 2300 PA Leiden, The Netherlands. —

NORTH AMERICAN FRESHWATER SNAILS

By J. B. Burch, 1989. 365 pages. Price: $30 plus $4 postage and handling, from Malacological Publications, P.O. Box 4115, Ann Arbor, Michigan 48106.

Book News in the August issue of Festivus quotes as follows: "a reprinting (combining under one cover) of three issues of Walkerana and reproduces (with some additional materials) the out-of-print EPA manual 'Freshwater Snails: Gastropoda of North America'..."

(This book) "covers the nearly 500 species of North American (north of Mexico) freshwater snails dealing with their classification, anatomy, identification, distribution, etc."

TWO NEW COFFEE-TABLE SHELL BOOKS

By curious coincidence two new coffee-table shell books have appeared during this Christmas season — One by Dr. R. Tucker Abbott and the other by his former student, Dr. Jerry Harasewych, now a curator at the Smithsonian Institution. The comparison is interesting, since neither duplicates the other, the text approach is entirely different, and all the photographs are quite unique.

SHELLS —— Jewels from the Sea

By M. G. Harasewych. 224 pp., 211 plates. Rizzoli International Publications, Inc., 712 5th Ave., New York, NY 10019. Price $45. 10 x 11 inches.

The magnificent color photographs, with interesting backgrounds, and some of William Bledsoe's collection, are done by the well-known photographer, Murray Alcosser, who adds an interesting one-page commentary. The ten pages of text are meaty discussions of the Origin of the Molluscan Shell, the Formation of the Molluscan Shell, an account of how coiled shells have adapted to new environments, and a short bibliography. A three-page Preface by Stephen J. Gould covers the philosophy of the diversity and unifying themes of natural history.

SHELLS —— Nature in Photography

By R. Tucker Abbott. 202 pp., 160 color plates. Portland House, N.Y. Price $19.95. 11 x 13 inches.

The equally stunning photographs are by several photographers associated with the Image Bank of New York. Pete Carmichael, Bob Lipe, Alice D. Barlow and others supply unique views of shells and luscious collecting lagoons in the South Pacific. The 16-page text is simpler and more for the beginner, including such subjects as the Life Span of Mollusks, the Homelands of Shells, Shells among American Indians, Rare Shells, Fakes and Freaks, and Today's Great Shell Collections.

Both books are worth having and a treat to compare. Copies autographed by each of the authors may be obtained, postage free, from American Malacologists, P.O. Box 1192, Burlington, MA 01803 in time for Christmas.

Publisher's News Release, RTA

OF COLOR AND CAMOUFLAGE:

OCTOPUS BIMACULATUS

At the AMU-WSM meeting in Los Angeles last June, Roger T. Hanlon and John Forsythe of the Marine Biomedical Institute in Galveston presented a paper entitled "Qualitative and Quantitative Assessments of Concealment Tactics Used by Octopus bimaculatus in a Kelp Habitat." Their abstract follows:

Octopuses were observed and photographed during the day in their natural kelp habitat off the Channel Islands, California. We assembled an ethogram of body patterns used for concealment, which is their primary defense against predation. We illustrate their tactics of general color resemblance, deceptive resemblance, and disruptive coloration and we then assess pattern and brightness matching to representative backgrounds with a computerized image analyzer. This species is capable of diverse body patterns that provide superb concealment against a multitude of backgrounds; neural control of chromatophores and papillae allow octupuses to conceal themselves instantly as they move onto different substrates. Furthermore, O. bimaculatus climbs kelp stalks and remains motionless in a pattern resembling the color, brightness and texture of kelp; this 3-dimensional concealment and foraging tactic has not been observed in other shallow-water, benthic octopods.

* ** *

CONTROLLING SHELL COLOR IN GIANT CLAMS

By G. A. Heslinga

KOROR, PALAU — In malacological circles, "good color" for a Tridacna squamosa shell means a vibrant yellow or orange. A well-colored Hippopus hippopus, on the other hand, has deep reddish spots with attractive yellow highlights. For years, the Micronesian Mariculture Demonstration Center's tank-raised giant clams have had shells devoid of color. Clearly, something was lacking, reducing the marketability of surplus shells as specimens.

This problem now has been solved. Shell color in tank-raised giant clams can be turned on or off simply by adding or removing fish.

This solution can be confirmed easily by transplanting clams (or fish) from tank to tank. The proof is recorded permanently in the clamshell, and we have a nice collection of striped shells.

What is going on? We are not certain, but we suspect that pigments in fish waste products are incorporated into the protein matrix of the calcium carbonate shells. The pigments probably originate from the hemoglobin in fish blood. When red blood cells age and rupture, heme from hemoglobin is converted into bile pigments biliverdin and bilirubin which in turn give giant clam shells their characteristic colors in the wild.

Our Tridacna derasa shells, white when raised without fish, now are a beautiful peach color when raised in polyculture with rabbitfish.

Hawaiian Shell News,
August 1989, Page 5.

THE CASE OF THE ZEBRA MUSSEL

The Zebra Mussel (or Striped Mussel) (or Striped Clam) is the freshwater bivalve Dreissema polymorpha (Pallas, 1771), which is listed as native to the Caspian Sea and abundant in freshwater lakes and streams of Europe and Asia Minor. The shell is illustrated in Compendium of Seashells (Abbott and Dance, 1982) on page 351 "False Mussels. Dreissenidae" with the following remarks: "This is a strange group of bivalves related to the venerid and tellinid clams, but which have invaded freshwater and resemble the Mytilus blue mussels. They live attached to pilings and clog water pipes. The narrow end of the valve has a septem, or ledge."

This old-world species, which grows to two inches in length, has quietly established itself in the western portion of Lake Erie, the Detroit River, and Lake St. Clair. From what we can determine from news reports, its presence did not become obvious until the summer of 1988 when it drew the attention of scientists of the United States and Canada to their common problems: how to assess the newcomer's effect on native species; how to discourage the spread of such a proliferating species; how to block further intrusions of non-native species, and HOW DID IT GET HERE, ANYWAY? An article in The Great Lakes Reporter of March-April 1989 quotes an ecologist, "... there are few such space-limited species to compete with them, and no natural predators."

The article in The Great Lakes Reporter informs us that "The Great Lakes Fishery Commission has taken the lead role in efforts to stem the tide of invaders ... and (this) binational agency has focused its efforts on a prime suspect in such invasions: ships' ballast. ... Canada's Coast Guard had already written, in 1980, a report documenting the transportation of organisms in ships' ballast entering the St. Lawrence Seaway. Last year the Fishery Commission lobbied the coast guards and federal governments of Canada and the U.S. to restrict or eliminate the dumping of ballast from other continents in the Lakes, efforts supported by federal, state and provincial fishery agencies. As a result, Canada's Coast Guard has agreed to ask the captains of ships entering the St. Lawrence to exchange freshwater ballast from other ecosystems for salt water, as saltwater organisms are far less likely to survive in the Lakes than those from other lakes and rivers."

* * *

Fred L. Snyder, Ohio Sea Grant extension specialist, is the author of the following interesting account which appeared in the Columbus Dispatch and was entitled "Sheepshead finally earning their stripes." (Editor's note: Lake Erie's sheepshead/fresh-water drumfish, Aplodinotus grunniens of the family Sciaenidae, should not be confused with our Atlantic coast sheepshead, Arcosargus probatocephalus of the family Sparidae, although the two species have similarities of shape and pattern.) Mr. Snyder writes of his first-hand experience:

> It's been my casual impression that sheepshead have been less numerous in my Lake Erie walleye catch than they once were, and that they also run smaller and look thinner than before. I was beginning to think they were another species being outcompeted by white perch.
>
> That's why an observation was a real eye-opener a couple of Sat-

urdays ago.

My brother and I were drifting above a 15-foot-deep rocky ledge along one of the islands, casting jigs tipped with crayfish and shiners for smallmouth bass. Occasionally, the jigs snagged a chunk of rock and brought it up, and the rocks always were covered with zebra mussels, Lake Erie's newest troublesome intruders.

Although smallmouth weren't overly cooperative, the sheepshead were. We quickly boated a half-dozen large ones. While the big drum all had a peculiar golden hue, their most notable features were their well-developed frames and distended bellies.

On a hunch, we opened a few of the sheepshead to check their stomach contents. Sure enough, zebra mussels by the double handsful. Lake Erie seems to have a natural predator for the alien shellfish.

The sheepsheads' taste for zebra mussels isn't surprising. Drum have knobby, platelike grinders in their throats for crushing shellfish.

Crayfish and fingernail clams are important parts of the freshwater drum's diet. As with zebra mussels, the fish crush the shells, digest the soft parts and pass the rest,

Some biologists had speculated that sheepshead might prey on the mussels. They questioned how effectively the fish could break zebras away from surfaces where they attach.

Zebra mussels grip surfaces with fibers that extend from their shells. Sheepshead appear able to tear them free.

This hardly means freshwater drum are going to rid Lake Erie of zebra mussels. The little mollusks have incrusted a large portion of the lake's submerged hard surfaces in only three years or so, and each mussel produces up to 40,000 eggs a year.

While zebra mussels are under scrutiny by biologists throughout the Great Lakes, it's widely recognized that control is virtually impossible.

In Europe, where zebra mussels originated, people and industries have learned to live with them. They have adapted water intake pipes so that they function efficiently despite shellfish incrustation.

Lake Erie's sheepshead are an interesting new character in the zebra mussel story. In a lake where competition for food sometimes is severe, a nearly limitless food supply for sheepshead has emerged.

(The quotations from The Great Lakes Reporter were taken from a reprint in National Capital Shell Club's Newsletter, Fall, 1989. Fish identification from The Book of Fishes, National Geographic Society, 1952. Thanks also to Walter Sage, and to Dorothy Germer for sending us the above article from the Columbus (Ohio) Dispatch of August 10, 1989.)

Dorothy Raeihle, Editor.

MATHILDE P. WEINGARTNER

It is indeed with deep sorrow that we must report the loss of our Tillie Weingartner. She died at a convalescent center on November 8th after several months of steadily declining health. She was 82 years of age. We all held Tillie with affectionate regard, and mourn her passing.

Born in Zurich, Switzerland, her interest in nature began when she was a child; her father and grandfather would take the children of the family on long walks in the woods. Tillie recalled, "I always had a thousand questions."

Tillie was 13 years old when the family came to this country and the children immediately put into public schools. Tillie said, "It was easier for the younger ones. . " as she recalled the thrust of the change and how she had worked, and struggled, and won fluency in her new language.

Staten Island was in large part quite rural at that time, and there were woods and fields, streams and ponds, and now beaches to explore, always with her "thousand questions." While in high school she joined a natural history group designed for teen-agers; they met at the Staten Island Museum — and this was the beginning of what later became Tillie's long association with that institution which is more properly called the Staten Island Institute of Arts and Sciences.

Miss Weingartner focuses on some wildlife in this 1973 photo.

After high school, Tillie trained at St. Luke's and followed a career in nursing until 1946. Her volunteer work in nature study and preservation groups led eventually to full-time volunteer work at the museum and various positions there. She was appointed Curator of Natural Science in 1961, a position from which she retired in 1975.

One of her proudest accomplishments was the preservation of 260 acres with their woodland and marsh, field and stream, in New Springville: She was a founder, and is called the "soul", of the William T. Davis Wildlife Refuge there, which was established through the efforts of the museum with the cooperation of the New York City Department of Parks. This was in 1956, before the planned Verrazano Bridge, before Westway. "It was as though we could all see it coming," she said. In her Staten Island Walk Book, a 24-page guidebook published in 1962 by the SIIAS, she locates the Wildlife Refuge and ten other interesting spots to enjoy, on foot. On several pages she has added comments — some concerning the history of that area, others that seem to say, "LOOK! It's there for you to see."

Her work and advice were gratefully acknowledged as important contributions in campaigns to preserve natural areas. Among them: Greenbelt: "Her quiet contribution was enormous." S.I. Advance: Chosen as Woman of Achievement, 1973. New York Parks Commission: A certificate of commendation in appreciation for 55 years of dedicated park service.

There were victories, and there were compromises, and there were some situations where there was no authority to block foolishness. The memory picture is sharp: As we approached a narrow stream confined between bulkheads, Tillie pointed it out to us with a gesture of resignation tinged with exasperation, telling us how the builders' plans called for filling in the banks of the stream to extend the lawn. "I told them that if they constricted the stream they'd have floods, as the stream rises after every rain. Well, they did, and now they're crying about the floods." Q. E. D.

Many natural history groups counted Tillie as a valued member. She held membership in at least two bird clubs plus the Audubon Society, two botanical clubs plus Botanical Gardens of Staten Island of which she was a charter member, civic organizations, Greenbelt, NYC Park Department, American Malacological Union — and the New York Shell Club, of which she was a charter member, and served a term as vice president before accepting the duties of treasurer for the following 26 years. We found her brusque, shy, kind, direct, and caring.

Tillie's long life was one of service. Each of us has memories.

We offer condolences to her sisters, Anna J. Meyer and Elizabeth Maki, of New Jersey.

Dorothy Raeihle

SEA CORAL A BONE SUBSTITUTE?

Plastic surgeons are finding that certain kinds of sea coral, harvested from the South Pacific, can closely mimic human bone—without the disadvantages of grafts. First, the coral is treated with heat, pressure and special chemicals into calcium phosphate, the primary mineral ingredient of human bone. When the resulting product is implanted, the body's natural bone will slowly begin to grow into the pores of the coral—usually within four months. It is not as strong as bone, but for areas like the jaw, even a strength equal to 25% of natural bone appears to be enough.

So far, the substance is used only in areas like the jaw, and only in adults, because there is uncertainty whether the coral will inhibit growth in a developing child.

Excerpt from reprint, Shell-O-Gram 30(3):9, No source.

LETTERS FROM MARY SAUL

(During the years her husband was stationed in Sabah, Mary Saul amassed a very interesting and scientifically valuable shell collection which became well-known in conchological circles. Mr. and Mrs. Saul returned home to England in 1967; now, years later, she writes of the careful disposition of her material.)

Gate Cottage
Castlemorton Common
Little Malvern, Worc. WR13 6LG

June 16, 1989

... I am in process of winding up my conchological activities. Fellow members may be interested to know that my personal collection of the Mollusca of Sabah (Borneo) is to be transferred later this year to its permanent home, Zoological Museum at Amsterdam in the Netherlands.....

All the display and exhibition material I had accumulated over the years, I have presented to the embryo Natural History Museum in Tenerife (Canary Islands) which has for many years been my winter home. A shell gallery utilizing most of this material will be opened in the near future, I hope, when the splendid old Civil Hospital building, now being restored and adapted, is ready to be opened as a museum centre.

November 10, 1989

... My whole reference collection of the Mollusca of Sabah (North Borneo) has now been shipped to the Zoological Museum at Amsterdam and I am expecting a ring from Dr. Henry Coomans any day now, to advise me of its safe arrival.

It is indeed a traumatic to part with a collection personally collected over ten years of fieldwork in one area — even so large a one as Sabah, where one had not only the help, encouragement and guidance of eminent malacologists as Dr. Harald Rehder and Dr. Tucker Abbott, but the added stimulus of knowing oneself to be "first in the field."

When I watched the carrier's van depart down the drive with my collection in nine crates on board, I felt as if a part of myself was leaving with them. Yet my consolation is that my long-cherished shells, many with some special story or collecting anecdote, have gone where they will not only be cared for and appreciated and used for study, but will also fill an unique segment in the geographical sphere of the museum's Southeast Asia collections. Sabah, whose east coast touches the southern end of the island chain which encircles the Sulu Sea, links together Indonesia (Dutch East Indies), source of the museum's unrivalled collection, with the collection acquired more recently from the Philippines.

I had corresponded for many years with the museum's Chairman of Malacology, Dr. Henry E. Coomans, while Mrs Van der Feen van Bentham Jutting, their authority on the terrestrial Mollusca of Southeast Asia, worked on all my Borneo material and named several new species. So when I wrote to Dr. Coomans on the subject of a permanent home for my collection, he replied that "We are very proud that your Borneo material will be presented to Amsterdam." So I am content!

Amsterdam is not very far away and I shall be able to combine a springtime visit to the museum with a tour of the tulip fields for which Holland is so famous.

May I reciprocate sincere good wishes to yourself and fellow members of the New York Shell Club,

Sincerely,

Mary Saul

* * *

(Mary Saul became a member of the New York Shell Club in March, 1966, introduced by the late William S. Murphy. She wrote two articles for these NOTES: Shell Collecting in the Limestone Caves of Borneo, a very descriptive account which appeared in October, 1966, NOTES 125, pp. 5-9, and Sea Gift in NOTES 154, pp. 4-5 describing the situations and mollusks of a "golden beach" at Tanjong Aru, which we published in September, 1969.

Her book was favorably received and is listed in the Smithsonian's paperbound Sources of Information on Mollusks. Shells, an Illustrated Guide to a Timeless and Fascinating World, was published by Doubleday in 1974 and may still be available.

We compliment Mary Saul for the considerate placement of her treasures and wish her a happy "retirement" — may she be busy without pressures!

Dorothy Raeihle)

MISCELLANEOUS NOTES AND NEWS

STATE SHELL:

Add to the list on page 4 of NOTES 312: VIRGINIA: *Crassostrea virginica* (Gmelin, 1791), The American Oyster. And erase the question mark after Rhode Island. (Source: Astronaut Trail Shell Club.)

PRECEDENCE:

The following opinion was published on 23 June in Vol. 46, Part 1 of the Bulletin of Zoological Nomenclature:

Opinion 1539. *Conus floridanus* Gabb, 1869 (Mollusca, Gastropoda): not to be given precedence over *Conus anabathrum* Crosse, 1865.

(From Conchologists' Newsletter 110, Sept. '89)

EXCHANGE:

Pablo Dotta, Olaeabal 1034, 12900 Montevideo, Uruguay, writes that he found our address in an old AMU roster. He would like club members to write to him to begin exchanging for marine, land and freshwater shells from Uruguay, Argentina and Brasil. His list of 31 marine species includes shells of *Acmaea*, *Littorina*, one of *Zidona*, *Buccinanops*, *Adelomelon*, *Chlamys*, *Amiantis*, and a dozen or so other genera. Land shells are *Drymaeus*, *Succinea*, *Otala* and *Helix*. Freshwater: *Anodontites* and *Pomacea*.

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1989-90

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 10, 1989
October 8, 1989
November 12, 1989
December 10, 1989
January 14, 1990
February 11, 1990
March 11, 1990
April 8, 1990
May 6, 1990 (1st Sunday)
June 10, 1990

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History, with the exceptions noted below. (Present your membership card for admission to the Museum for the meetings.)

SUNDAY, MARCH 11, 1990, at 2:00 p.m.

THE ECOLOGY OF THE EVERGLADES, a color slide presentation by Jon Greenlaw, Professor of Biology, C. W. Post College.

SUNDAY, APRIL 8, 1990:

ANNUAL SOCIAL AND AUCTION to be held at Dorothy Jensen's Dance Studio in Astoria. (See PROGRAM NOTES, page 2, for more information.)

SUNDAY, MAY 6 (the FIRST Sunday in May):

FIELD TRIP TO LONG ISLAND SHELL CLUB SHELL SHOW, Freeport, Long Island. (See PROGRAM NOTES, p.2.)

SUNDAY, JUNE 10, 1990, at 2:00 p.m.

Our speaker will be Robert Janowsky.

CONTENTS

		Page
Program Notes	Theta Lourbacos	2
ALS Film Symposium at AMNH	ALS Announcement	2
Long Island Shell Club Show May 5,6	Announcement	2
Highlights of Recent Meetings	Milton Werner	3-5
Florida requires salt-water fishing license for live-collecting mollusks	Editor	5
Exhibit of shells at Garvies Point Museum, Glen Cove	Announcement	6
For collectors of fossil shells, reprint of PLIOCENE MOLLUSCA S.FL.	Announcement	6
REVIEWS:		
COMPENDIUM OF LAND SHELLS, by R. T. Abbott	Richard Goldberg	6
REVISION OF THE STROMBINA-GROUP, FOSSIL & LIVING, by Peter Jung	Donald R. Shasky	7
A report by Horace F. Carpenter (1890)	MKJ in NOTES 117.3	8
Seven underwater wonders of the world	Larry Booda	9
March of the mollusks (Dreissena polymorpha, Corbicula fluminea).	Editor's report	10
Limacidae and other noisy mollusks	Dorothy Raeihle	12
Strategy for landsnail collecting	Harry G. Lee	13
Miscellaneous notes and news: Florida Keys for sale, info source re: zebra mussel, Slow Food, Cat's ears, Atlas of sea floor, State shell for Connecticut.		15

PROGRAM NOTES

APRIL 9th, 1990: Our annual Social/Auction will be held, as in past years, at Dorothy Jensen's Dance Studio in Astoria, Queens. The detailed announcement will be mailed to members about the end of March, and will include travel instructions as well as information about time, place, bargain table, door prizes, refreshment table, et cetera. In addition, you will receive a list of shells to be auctioned — an outstanding collection, mostly from the estate of the late Veronica Parker Johns and were of the stock of her shop, Seashells Unlimited. We urge you to set aside this date and notify friends and acquaintances of this outstanding opportunity to acquire some beautiful shells at bargain prices.

MAY 6th, 1989: Remember, this is the FIRST Sunday in May! New York Shell Club members will visit the 1990 Shell Show of the Long Island Shell Club. The detailed announcement of time, place, travel suggestions, etc., will be mailed to members (along with the information about the April Auction/Social) about the end of March.

JUNE 10th, 1990: The speaker will be Bob Janowsky, long-time member of the New York Shell Club, and proprietor with Dottie Janowsky of Mal de Mer Enterprises.

FALL 1990 PROGRAMS, beginning September 9th, 1990: We must begin our planning NOW for our 1990-91 programs, and welcome suggestions for topics. Please let us know if you might have a program ready for next season, or if you know of someone outside the Club who could give us an appropriate program.

Theta Lourbacos

FILM SYMPOSIUM AT AMNH MARCH 14th

The American Littoral Society's 24th annual evening program of film, slides, and talk on underwater subjects, will be held 7:30-9:30 p.m. in the auditorium of the American Museum of Natural History. The subjects this year: Manatees, Sharks, and Leatherback Turtles. Admission $8.00. Check for availability of tickets.

Write to the American Littoral Society, Highlands, New Jersey 07732 (membership $20 per year) for their 1990 schedule of events and field trips which range from Maine to Florida and Bermuda to Belize.

ALS announcements

LONG ISLAND SHELL SHOW MAY 5, 6.

As previously announced, the Long Island Shell Club has invited interested collectors to participate in their upcoming shell show by entering an exhibit (or exhibits) of their own personal choice and category. The show will be held at the Freeport Recreation Center, Freeport, Long Island, the first weekend in May (set-up date: May 4th). To participate, write or telephone to Chairman Vi Greenlaw, 5 Etna Lane, Dix Hills, New York 11746 — Telephone: (516) 421-5235 — for general information and an application form. Deadline is March 31st, so don't delay.

dr

HIGHLIGHTS OF RECENT MEETINGS

OCTOBER 29, 1989: The 380th meeting of the New York Shell Club was in Room 419 on October 29th because the room had not been available on the second Sunday of this month. Attendance was 61 members and visitors.

President Al Scarpetti expressed concern at having learned that Tillie Weingartner's condition was poor, and her address was posted on the board for those who might wish to send a card or note.

Al distributed an information sheet on which the career of the day's speaker, Waldemar Hansen, was outlined, and which noted the locale of the November meeting - the New York Aquarium. He also called attention to the special sale of shells, on November 19, from the stock of Veronica Johns' Seashells Unlimited.

Nick Katsaras spoke briefly about his October 27th visit to the Philadelphia Shell Show, remarking "I can't stop buying shells." He had on display some Turbos, Conus, Mitra and ammonites.

The speaker, Waldemar Hansen, is a world-famous lecturer, author in several disciplines, and constant traveler. His subject was the Great Barrier Reef of Australia. It can be approached, he related, by helicopter or boat, and can be walked on or viewed from a glass-bottomed boat. His description of it included the building process, and noted that it is 1,258 miles long, mostly in the Tropic Zone. Captain Cook is given credit for its discovery, but others were there earlier. China claims the first contact, citing visits by expeditions seeking sea cucumbers. Mr. Hansen noted that there are twenty islands along the reef where there are tourist accommodations.

Among the great variety of families and species of mollusks that live on the reef are five of the most virulently poisonous of Conus. Mr. Hansen's slides included pictures of many of the shells found on the reef, as well as fish, lobsters, turtles, birds, and models of protozoans. Autographed copies of his highly regarded book, "The Peacock Throne," were available.

——— Milton Werner, Recording Sec'y

NOVEMBER 12, 1989: The 381st meeting of the New York Shell Club took the form of a visit to the New York Aquarium, at Coney Island, Brooklyn. By arrangement, the 29 members and guests who attended were given a guided tour of the exhibits, and a look behind the scenes. Our guide, Linda Wolf, led off with a fascinating insight into the care and feeding, and habits and characteristics of the Aquarium's two beluga whales. She offered similar commentary on the harbor seals and penguins, and explained the reasons for the groupings of fishes in the indoor tanks. The behind-the-scenes tour allowed a look at the pumps and filters and the equipment used in maintaining and handling the fish on exhibit and in the holding, or quarantine, tanks where new arrivals are checked for soundness.

——— Milton Werner, Recording Sec'y

DECEMBER 10, 1989: President Al Scarpetti called the meeting to order and presided over the brief business meeting and discussion.

Two guests were introduced: Paulina Konarska and Romvold Czepulkomski. They came to the United States from Poland two years ago.

The door prizes were a Voluta wisemani, won by Theta Lourbacos, a Latiaxis mawae, won by Betty Renman, and a Pecten ruschenbergeri, won by Irv Hoppenwasser.

Walter Sage noted that the dates of the Long Island Shell Club Shell Show will be May 4-6 (May 4=setup day). At the dinner, Russell Jensen will speak and show slides. Walter also noted that flyers describing Dr. R. Tucker Abbott's "Compendium of Land Shells" are available, and he displayed a copy of "Shells," by Dr. M. G. Harasewych.

Programs were announced for coming meetings, January, February, March and April 1990.

The speaker was Walter Sage, whose subject was "Rare and Beautiful Shells." With slides and commentary he covered a great variety of outstanding species and specimens. One of the slides he chose had been made by Bill Old: it lists the seven categories of rarity that he recognized, to which Walter added notes and details.

——— Milton Werner, Recording Sec'y

JANUARY 14, 1990: Following her financial report for December, Treasurer Theta Lourbacos presented the final figures of the November 19th shell sale. Net income was $952.95, of which $238 (25%) was donated to the William E. Old Malacology Fund.

Paulina Konarska and Romvold Czepulkowski, who were visitors to the December meeting, were welcomed as new members.

President Al Scarpetti proposed that the May meeting take the form of a field trip to the Long Island Shell Club Shell Show, on May 6. A show of hands approved the suggestion.

The door prizes were a Pecten punctilatus, won by Dr. John Bockelman, a Tellina radiata, won by Al Scarpetti, and a Penicillus penis, won by Doreen Pokoyk.

Al noted that he, Walter Sage, Dorothy Jensen and Sol Weiss had selected the shells that will be offered at the April auction.

Visitors Marvin and Irma Easton and Marjorie Deutsch were introduced.

The meeting then moved to the fifth floor of the Museum, to Walter Sage's office and workroom. Here Walter had set out for inspection many drawers of shells of special interest. Many had been acquired recently as parts of private collections that had been donated to the Museum. Walter provided comment and description on each group of shells, and answered a steady stream of questions, in what was clearly regarded as an interesting and enlightening afternoon.

——— Milton Werner, Recording Sec'y

FEBRUARY 11, 1990: After the routine business was taken care of, President Al Scarpetti mentioned last month's decision to make the May meeting a visit to the Long Island Shell Club's shell show on May 6th. There was some clarification of travel possibilities, and Theta Lourbacos announced that there would be general information about this show and the April auction included with the list of auction material, which will be distributed by mail.

In a response to a call for volunteers to help with the auction, Allen Aigen offered to serve as the auctioneer's runner.

It was noted that Allen had brought some shells, gastropods and bivalves, from the Sea of Galilee, for anyone who might want some.

The speaker was Walter Sage, who presented a two-part slide show. The first, with taped narration, pictured and described the attractions within easy reach of Melbourne, Florida, where the Conchologists of America will hold their 1990 annual convention July 9-13. The list includes Melbourne itself, Cape Canaveral, Port Canaveral, Merritt Island, Disney World, Epcot Center, Sea World, and the Cypress Gardens.

Walter then showed a series of shell photos assembled by Bill Old under the title "Cones of the Americas." The photos, many made by George Raeihle, were chosen to emphasize the variability within Conus species and the similarity between certain species. Walter's comments pointed the continuing difficulty in classifying cones.

The door prizes were a Conus miles, won by Bernard Kinsey, a Cypraea mappa, won by Ruth Juster, and a Phalium fimbriata, won by Nick Katsaras.

——— Milton Werner, Recording Sec'y

FLORIDA REQUIRES SALT-WATER FISHING LICENSES FOR LIVE-COLLECTING

Florida shell club papers report the new law, which took effect as of January 1, 1990. We give you excerpts as quoted in the Capsule, paper of the Astronaut Shell Club, issue of January 24, 1990:

"No person, except as provided in this section, may take, attempt to take, or possess any marine fish for noncommercial purposes unless he has obtained a license from the department (Natural Resources)."

The Florida legislature uses the ages-old, first definition of "fish" as it is stated in Webster's International: "fish, n; 1. In the broadest sense, a designation of almost any exclusively aquatic animal, vertebrate or invertebrate; — now rare except in combinations, as in starfish, cuttlefish." And, of course, shellfish. Thus, sea creatures that in popular terminology are not referred to as "fish" are included in the ban on unrestricted collecting. The law specifies that "'marine fish' means any saltwater species of finfish of the classes Agnatha, Chondrichthyes, and Osteichthyes, and marine invertebrates in the classes Gastropoda, Bivalvia, and Crustacea, or the phylum Echinodermata, but does not include nonliving shells or Echinoderms."

There are various categories in the licensing — noncommercial from shore or asea, commercial, resident, non-resident, etc., details of which are to be pursued by the applicant.

We recall that some years ago California enacted laws restricting live collecting when ravaging became a problem. We do not know the impetus for Florida's new law.

dr

EXHIBIT OF SHELLS AT GARVIES POINT MUSEUM

A beautiful and informative exhibit of world-wide shells opens March 17th at the Garvies Point Museum in Glen Cove. The arrangements by family, and divisions by province, present an introduction to conchology and malacology. The exhibit is to run to the end of the year.

The museum is a satellite of the Nassau County museum complex. It is situated atop a cliff overlooking Hempstead Harbor and is a center for the study of regional geology and Indian archaeology; the cliff-side exhibits geological features exposed by uplift. Other nature trails in the 62-acre preserve attract botanists and bird watchers.

Museum hours : 9:00 a.m - 4:45 p.m. Admission (believe it!): 25¢.

How to get there: From L.I. Expressway, Northern State or Meadowbrook, exit on Glen Cove Road, Northbound. Continue on Glen Cove By Pass (keep left at fork) to last traffic light facing Glen Cove Fire House. Follow signs to the Museum on Barry Drive.

dr

PUBLICATIONS:

GOOD NEWS FOR COLLECTORS OF FLORIDA'S FOSSIL SHELLS

The PLIOCENE MOLLUSCA OF SOUTHERN FLORIDA by Olsson and Harbison, long out of print and hard to find, is once again available in the form of a handsomely bound reprint issued by the Shell Museum and Educational Foundation on Sanibel Island. Permission was granted by the Academy of Natural Sciences of Philadelphia which originally published this classic in 1953 as their Monograph No. 8. The new book of 590 pages (460 text, 130 of plates and explanations), together with a seldom seen addendum, and now with biographies of the authors, has long been a mainstay for identifications of Florida's fossil shells for amateurs and professionals alike.

Copies may be obtained for $51.00 (postage and handling included) by sending check or money order payable to Shell Museum & Educational Foundation, Inc., P.O. Box 1580, Sanibel, Florida 33957. (Florida residents - please add $2.94 Florida sales tax.)

News release

REVIEW:

COMPENDIUM OF LAND SHELLS

by R. Tucker Abbott. 240 pp., over 2,000 color photos. American Malacologists, 1989. Hardbound, $56.00 from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

The land snails comprise approximately half of the estimated 60,000 known species of snails. While their diversity in color, shape and sculpture has made them a favorite of many collectors, identification of the terrestrial and tree snails has always been a problem, due to lack of available identification guides. This problem has finally been addressed with the arrival of COMPENDIUM OF LAND SHELLS by R. Tucker Abbott. A companion to his successful Compendium of Seashells, his new 240 page hardcover book illustrates over 2,000 species of pulmonate and prosobranch mollusks with crisp, high quality color photographs. The exotic shapes and colors are bound to convert even the skeptic to land shell collecting.

Not only does the book help with identification, but its truly informative introduction will give the reader a solid basis for understanding these fascinating mollusks. Included in the introduction are many spectacular photographs of living land snails, with captions to understand their form, sculpture, shape or color. The first color photographs of living Polymita snails grace the title page.

The section entitled "Illustrated Guide to the Land Shells" makes up the bulk of the book. Following the same format as the Compendium of Seashells, it illustrates about twelve species per page, with informative captions. The species are arranged taxonomically, from the prosobranchs (or operculates) through the pulmonates (or air breathers), and a good, representative selection of the known species is included.

Probably the most useful contribution of the book, aside from the identification section, is the bibliographies. This section provides a springboard into further research. Along with a "General and Current Journal" section, there is a geographical bibliography which contains hundreds of citations grouped by regions.

The section entitled "Classification of the Landshells with an Illustrated Bibliography" is the shining star of the book. To help narrow down an unidentified land shell specimen to its family, the book illustrates, as a key, a representative species from each family. This section should make beginners as familiar with the taxonomic arrangement of the land mollusks as they are with that of the marine shells.

The advanced collector might dispute the generic placements of a few species. But in my years of land mollusk research I have always found the scientific community to disagree in this area so, until more is known, I dare say that there is probably no right or wrong.

COMPENDIUM OF LAND SHELLS is the most ambitious land shell book since Pilsbry's Manual of Conchology, and offers, without doubt, the finest illustrations ever. It is also one of the least expensive color books of this magnitude to be published in the past few years.

With the rapid loss of our precious land resources, there is the very good chance that many of these fascinating land mollusks will disappear too. Hopefully, bringing to light the beauty that is found in the forests will help slow their destruction. But if not, COMPENDIUM OF LAND SHELLS will have recorded a portion of natural history for future conchologists who may not have the chance to experience the real thing.

Richard L. Goldberg.
From his review published in
American Conchologists 17(4):18

REVIEW:

REVISION OF THE STROMBINA-GROUP (GASTROPODA: COLUMBELLIDAE), FOSSIL AND LIVING. DISTRIBUTION, BIOSTRATIGRAPHY, SYSTEMATICS.

By Peter Jung. 27 November 1989. Published by Birkhauser Verlag, Basel, Switzerland. Price not stated.

For several years, I have been aware that Dr. Peter Jung of the Natural History Museum, Basel, Switzerland, was engaged in a revision of the columbellid genus Strombina. The work has been completed and is a hard-covered monograph. It has been published as Vol. 111 of the Schweizerische Paläontologisch abhandlungen (Mémoires suisses de Paléontologie).

The work runs 298 pages with 344 figures. The figures include: photographs of specimens, cross sections of body whorls, locality maps for individual subgenera and species, and various statistical tables.

Dr. Jung treats a total of 98 species: 63 fossil and 35 living. Within the "Strombina-group" he includes five genera: Strombina Mörch; Cotonopsis Olsson; Clavistrombina new genus; Sinacola Olsson & Harbison; and Bifurcium Fischer.

Two extant and four new subgenera are used in Strombina; Cotonopsis Cotonopsis s.s. and one new subgenus; Clavistrombina is monotypic; Sinacola includes Sinacola s.s. and three new subgenera; Bifurcium is without subgenera.

Also erected are ten new species. Four are fossils and six are living. The living species are all from the tropical eastern Pacific. Altogether, Dr. Jung examined 2,545 lots, which amounts to 33,600 specimens. The institution or private collection of each lot is cited.

The amount of effort expended to gather this material and the way the data is presented make this work a model for all systematists. Each species is described. Types and many paratypes are figured from ventral, dorsal and side views. Protoconchs, when present, and teleconchs are also figured.

This is an outstanding contribution, and I highly recommend it to all malacologists.

Donald R. Shasky in
The Festivus XXII(2):23

From THE NAUTILUS 4:38, 1890, a report by Horace F. Carpenter:

"There are about two hundred boats engaged in scallop dredging and each boat is allowed by law to take only twenty-five bushels per day from September 1st to April 1st, making only five thousand bushels per day for seven months in the year. The adductor muscle only is eaten, while the rest of the animal (the 'rim,' so called) is thrown away. If cats are allowed to eat the rims their ears drop off. This fact is well known to all scallop dredgers and a good many earless cats can be seen at Pawtuxet and East Greenwich (Rhode Island) at any time, caused by eating scallop rims of which they are very fond."

NOTE: At first sight this seems to be such a ridiculous statement that the tendency is to pass it off with a snort or a laugh. But Mr. Carpenter had the reputation of being a careful student of mollusks, and his studies of the shell-bearing mollusca of Rhode Island (printed in numerous articles in THE NAUTILUS and in its predecessor, THE CONCHOLOGICAL EXCHANGE) are among the best local studies ever printed in the United States. Can there be anything to this apparently ludicrous remark?

M. K. Jacobson in NYSC NOTES 117.3, December 1965

SEVEN UNDERWATER WONDERS OF THE WORLD CHOSEN

Ever since 200 B.C., "Wonders of the World" in many categories have been recognized. Now the realm of the oceans has joined the listings.

CEDAM International™ (Conservation, Education, Diving, Archeology, Museums), an elite organization of divers that has mobilized marine biology and archeology expeditions over a period of 22 years, has begun a new venture to join past efforts in establishing museums and publishing marine park guidebooks.

Seven underwater wonders of the world were chosen August 25 at a meeting of CEDAM in Washington, D.C. by a panel of marine scientists, scholars, and entrepreneurs, They are:

* PALAU. This independent nation composed of a ragged chain of islands 500 miles east of Mindanao in the Philippines is surrounded by a coral reef. Ancient ruins indicate that there was an advanced civilization there before historical times. The reef areas contain spectacular vistas for recreational divers and abound in natural resources, both vegetable and mineral. Population is about 20,000.

* NORTH RED SEA. This includes the area south of the tip of the Sinai Peninsula and the Gulf of Aqaba. Not only is the underwater world there spectacular but represents a body of water that receives no fresh water from rivers and streams, thus growing saltier. It is bordered by Sinai and Saudi Arabia and is 45 miles long.

* GREAT BARRIER REEF and the CORAL SEA. This is the highest reef in the world and harbors many different species of plant and animal life. It runs north-south for 1,000 miles off the northeast coast of Australia from near New Guinea south almost to Townsville and borders the Coral Sea.

* BELIZE REEF. This Caribbean Sea reef runs north-south along the coast of Belize, formerly British Honduras. It extends from the Yucatan Peninsula area of Mexico to a corner of Guatemala. The reef teems with thousands of beautiful life forms.

* GALAPAGOS ISLANDS. These islands belonging to Ecuador 300 miles to the east were publicized by the naturalist Charles Darwin. Through long isolation, the sometimes bizarre animals and plants there evolved without contact with the rest of the world. Life is dominated by sea influences. The islands straddle the Equator.

* LAKE BAIKAL. This deep lake in a rift of the earth's crust is said to contain more fresh water than all of the rest of the world's fresh water bodies — streams, seas, and lakes combined. The Soviet Union about 25 years ago began to recognize the importance of the lake that for awhile was threatened by the dumping of waste from a paper mill and other industry and sewage from a nearby city.

* DEEP SEA HOT WATER VENTS. As the tectonic plate theory of continental drift became accepted, manned submersibles soon discovered that the rifts along the spreading plates had numerous hot water vents that harbor strange forms of life. These plants and animals depend on chemical synthesis based on sulphur compounds instead of photosynthesis by sunlight of carbon and hydrogen compounds. The rifts run along backbone of the North and South Atlantic Oceans, the Indian Ocean, and Eastern Pacific Ocean.

CEDAM will develop the "Seven Underwater Wonders of the World" project and has thus far made plans for a conservation-oriented television documentary, an art-quality book, the world's largest exhibit of underwater photographs, and a behind-the-scenes video. This new venture joins past efforts in establishing museums and publishing marine park guidebooks. The project director is Rick Sammon, president of CEDAM International. He has led many expeditions over the world and is a writer and photographer.

Members of the panel that chose the seven wonders include Sammon and Jean-Claud Faby, U.S. Environmental Program; Scott Carpenter, marine/ logistics advisor; Dr. Chuck Carr, New York Zoological Society; Dr. Jacque Carter, Wildlife Conservation International; Dr. Eugenie Clark, University of Maryland; Lt. James Morris, NOAA; R.E. Johannes, Australia's Scientific Industrial Research Organization; Emory Kristol, National Geographic Society; Dr. Andy Rechnitzer, marine advisor; Marsha Sitnik, Smithsonian Institution, and Dr. Bill Stone, C-Lunar Development Laboratories.

Here is a partial history of interest in wonders of the world:

* 200 B.C. Antipater of Sidon names the "Seven Wonders of the World": the mausoleum at Halicarnassus, temple at Ephesus, hanging gardens of Babylon, statue of Zeus at Olympia, Collossus at Rhodes, Pharos at Alexandria, and the pyramids of Egypt.

* 550 A.D. St. Gregory of Tours compiles a list of the "Wonders Made by the Hand of God": the tides of the oceans, growth of plants from seeds, volcano Mt. Etna, rebirth of the phoenix, cycle of the sun, and cycle of the moon.

* 1913. Scientific American magazine publishes its list of "Modern Day Wonders": the airplane, automobile, reinforced concrete, X-ray machine, phonograph, and the motion picture.

* 1937. Current History magazine publishes a list of "The Wonders of the World," which includes the New York City subway system.

* 1946. This Week magazine's list of the "Wonders of the World" includes Los Alomos, where the atomic bomb was developed.

* 1955. Lowell Thomas' Cinerama production, "Seven Wonders of the World" is shown in movie theaters nationwide. The travelog takes the viewer to the wonders of the world, including Victoria Falls and the Taj Mahal.

* 1989. CEDAM International develops the "Seven Underwater Wonders of the World"^{tm} project. A team of leading marine conservationists, scientists and explorers assembles in Washington, D.C. to select the sites.

Larry Booda. Editor's Corner,
Sea Technology 30(10):75.

MARCH OF THE MOLLUSKS

Biologists estimate that the first invasion of the zebra mussel, Dreissena polymorpha, occurred in 1985 when one or more transoceanic ships discharged ballast water into Lake St. Clair. The freshwarer ballast, picked up in a European port, likely contained yearling zebra mussels — which found the plankton-rich Lakes St. Clair and Erie to their liking. An article by Fred L. Snyder in Ohio Sea Grant's publication, Twine Line, pages 3-5 of the December issue, gives us a a comprehensive description of its occurrence, its biology and prolific reproduction, its effect on the food web, and the concerns of industry and commerce. For a reprint, inquire c/o Ohio State University, 1314 Kinnear Road, Columbus, Ohio 43212-1194.

Reprinted in Central Florida Shell News 10(8):1-2 is an article, subtitled "Maurading crustaceans terrorize Great Lakes" (sic), by Geoffrey Cowley with Louis Aguilar from Detroit Newsweek of November 20, 1989, in which they describe the situation. We quote from their report:

> For Great Lakes fishermen, the immediate threat is not the thumb-size grown-ups but the sub-visible larvae the mussels spawn by the tens of thousands. Off the shores of Toledo and Cleveland and near Leamington, Ontario, a single cubic meter of water often contains a half-million larvae. ... The voracious youngsters have increased water clarity threefold - but they've done it by gobbling up the plankton and algae that support the rest of the aquatic food chain. Food shortages are already affecting the walleyed pike, a perchlike species that accounts for most of Ohio's $500 million sports-fishing industry and is harvested commercially in Canada. ...
>
> Mature zebra mussels use tough, threadlike membranes (byssal threads) to latch onto hard surfaces in layered colonies, and they seem particularly fond of the huge intake pipes that provide water supplies throughout the Great Lakes Basin. The town of Monroe, Michigan, had to ban lawn sprinklers this summer, after the crustaceans (sic) colonized its 30-inch-wide, 10-mile-long intake pipe, reducing its capacity by a third. Musselbound waterlines have brought a halt to development in the town of West Lorne, in southwest Ontario, and caused a series of equipment failures at the Ford Motor Company's Windsor (Ontario) Casting Plant, where engine blocks are cast from molten iron.

Thus, within only five years, Dreissena polymorpha has so proliferated it has become a serious pest.

Corbicula fluminea (Müller, 1774), first reported in the Columbia River area in 1938, is still on the march. Our latest report is from Thomas Stock, who found them in the Nissequogue River at Smithtown, at a site roughly 16 miles east and 8 miles north of our last report, which was at the pond at Tackapausha Preserve. The previous reports of Corbicula on Long Island were all from waters that flowed south to the Atlantic Ocean. This is the first report of Corbicula in a stream that flows north to empty into Long Island Sound.

We plead with observers to investigate the freshwater ponds and streams to the east, especially the headwaters and stream of the Peconic River, where infestation could become a serious problem.

Reports can be made to the editor and/or to the Department of Invertebrates, Molluscan Section, American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024-5192.

dr

LIMACIDAE AND OTHER NOISY MOLLUSKS

Some years ago Noel Jackson, of Durham, England, reported in Conchologists' Newsletter No. 76:295-6, 1981 his observation of a slug, Limax maximus Linnaeus, which made regular visits to a cat's bowl to partake of the milk. We found this most interesting, as it indicated that this soft, wet creature had a "memory."

Henk K. Mienis of the Hebrew University in Israel, who also read of Noel Jackson's slug, recently reported in Conchologists' Newsletter No. 105, 1988, a like observation by his colleague, Mrs. Mary Rosenthal: "Almost every night a number of slugs enter her house through an opening under the front door and crawl almost straight ahead to the cat's milk bowl. When they arrive at the bowl, they crawl over the rim, and, close together, almost side by side, they start to sip noisily from the milk. The species belong to Limacus flavus (Linnaeus, 1758) and varied in length from 3 to 10 cm."

The description "sip noisily" makes us curious. Was it a "slurp" or a scratching sound made by the several radulae, in concert, on the side of the bowl?

Locally, here in West Babylon, Long Island, a friend reports regular visits by slugs to the bowl of dog food - shared by a racoon - set out on the deck of their patio. When first observed from a moderate distance, the "thing" was thought to be a bait fish left by the racoon. Further description of size ("It was HUGE"), color and markings — and we can understand why it was, at a distance, mistaken for a bait fish — suggest that the regular visitor(s) are Limax maximus.

Jacobson and Franz, 1980, wrote in Wonders of Snails and Slugs, page 85: "Slugs are attracted to beer. If you set out a few shallow dishes of beer in the evening, the slugs will be drawn to them and will drown in the beer. This is a useful method for controlling them and worth trying if you have a slug problem in your garden." In Palmer's Shell Bearers, 1948/1949, Palmer notes that slugs are attracted to stale beer, and also that sometimes farmers protect their crops by placing a barrier of fine ashes over which the slugs cannot pass without losing too much moisture.

Unfortunately the above observations by Jacobson and Palmer were limited to the use of beer as a molluscocide. We do not know if a merely tipsy slug can slither away to safety, to perhaps return another day to indulge in such intemperance.

Don't laugh at the idea of a mollusk being noisy. Just listen. Have you ever gone scalloping with a hand rake? The rake is rather like a mesh basket on the end of a pole. One wades waist deep in "scallop country" and when the rake is brought up, half full of grass and weed, and you hear a clacking sound, you've caught a scallop and it is trying to escape; the noise is created by the two valves striking together in the scallop's swimming motion.

Several years ago we collected Nerita for observation. In the interval between collecting and setting them up in a proper aquarium we had them, with some algae-covered pebbles, in a moderately large jar. Late one evening, when all was very quiet, we heard a small, repeated sound we could not recognize. We searched out the elusive sound and traced it to the steady crunch, crunch of the

Nerita grazing on the algae. The sound of the radula scraping the pebbles was amplified by its reflection from the walls of the vessel and heard very distinctly when we put an ear to the jar.

We had a similar experience with Acanthopleura granulata (Gmelin, 1791) which was set up in a gallon-sized aquarium. The chiton had a longer and slower stroke — cru-u-nch, cru-u-nch — and its iron-clad teeth left an interesting pattern as it explored the side walls of its plastic container.

At a New York Shell Club meeting several years ago, Professor Melbourne R. Carriker played a tape he had made, using a microphone, of the sound of a captive Urosalpinx drilling a Mytilus edulis.

It is only logical to realize that, naturally, a sound is created by radulae scraping a hard surface; we usually just don't think about it. But we don't think a microphone would be useful in the field, as the sounds need all the amplification that can be arranged.

Dorothy Raeihle

TOWARD AN IMPROVED STRATEGY FOR LANDSNAIL COLLECTING

Harry G. Lee
Jacksonville, Florida

Earlier Shell-O-Gram reports (28(1):6; 28(4):7; 30(1):3) gave an account of the introduction of our president, Billie Aley Brown, to landsnail collecting in the Smokey Mountains. An impressive list of species found by her, with help from husband Paul and from Bonnie Holiman, attested to both the provident habitat and the improvement of Billie's field work skills. In October, 1989, Billie and Paul revisited the cabin on James Mountain, north of Asheville, North Carolina, and Billie made her sixth collection. Earlier this year a variety of smaller snails was found in soil clinging to the roots of oak saplings she had harvested on the mountain. This fortuitous observation impelled me to ask Billie for a larger, more selective sample of soil.

Accordingly, Billie set out with an ample provision of jumbo ziplock plastic bags. She scooped up several handfuls of humus and leaflitter from soil pockets in limestone talus near the cabin - at about 3,300 feet altitude. She only collected four species of snails during a brief reconnaisance using the traditional method of hand collecting visible specimens.

A week later I received a generous portion of this stuff - about two quarts. It was placed in a giant photographic processing tray (one meter square) and allowed to dry in the controlled relative humidity (75%) of my shell room. Careful kneading of dirt nodules and aeration of the stuff were performed almost every day to assure thorough dessication. One week later I sifted the material through graded sieves (built and provided by Bob Lipe) and saved the stuff which passed through the smallest (2mm square, 2.8mm diagonal) mesh. A small number of familiar species was retained on the sieves, but the hunt had just begun!

Thus I harvested 1,000 ml (about a quart of stuff that looked more like coffee grounds than snail habitat. Samples of about 5ml (one teaspoonful) were sprinkled on a 10cm square plastic tray so as to form a thin mantle. I had earlier marked the underside of this tray with parallel India ink stripes at 8mm intervals (slightly less than one field diameter through my Swiftstereo-microscope at 40 x). I then began a painstaking but remarkably productive inspection of Billie's sample. Each tray took about ten minutes to process - including the removal of snail specimens. This latter operation was accomplished by my time-tested technique of wetting the tip of an open safety pin with the tip of my tongue and touching this point to the shell under visible control through the scope. The table details the phenomenal outcome of the 30-hour-long study performed over a few weeks. Some of the specimens are illustrated here. [NOTE: The table of 37 species, the maps, and the illustrations, are NOT reproduces in these NYSC NOTES. Consult the Jacksonville Shell Club's publication, the Shell-O-Gram, 31(1):3,6, January-February 1990, in the NYSC library. —DR. Ed.]

I estimate that 800 to 1,000 shells were observed in the soil sample. Since many juveniles were considered not worth keeping (although most, except the smallest Carychium species, were identifiable), they were not selected. I culled 540 specimens of 28 species fom the soil sample. Over 97% came from the "coffeegrounds" component. A substantial number of species were new to my collection and/or new to the James Mountain cumulative checklist; many represented new county records; most were in ample numbers of specimens. Two species appear to be new to science. These details and others, such as adult shell size, are recorded in the table. By combining the results of the five forays led by Billie, we have a total of 37 species of land snails. All were collected within a radius of a few hundred yards - less than a quarter of a mile - from the cabin on James Mountain.

What lessons can ambitious shellers take from this experience? A few leap to mind as I review the table:

1. The two collecting methods (field reconnaisance/hand picking and soil sampling) are similarly effective and remarkably complementary in terms of species diversity.
2. Smaller species (less than 3mm.) are almost totally overlooked by hand-collection.
3. Larger species are moderately well represented in soil samples - especially their juvenile shells, which can be easily identified given a good reference collection and sufficient experience.
4. The optimal sample size for soil and time commitment for its analysis is not yet apparent. Certainly 30 hours is not going to be made available very often after this pilot study. An estimated 90% of micro species (less than 3mm) from these "coffeegrounds" could be found in 10 ± 5 hours of microscope (fact based on specimen counts). Techniques to concentrate the shells [e.g. Coney, C.C., 1981. A method of collecting minute land snails. Nautilus 95(1):43-44.] may economize the neck-wrenching tedium.
5. A reasonable expectation is that a single experienced collector (now Billie is approaching that status) could obtain

over 30 species from this station by combining a one hour search (preferably under wet conditions) with the sorting of a 50 to 500ml (dry/sifted volume) soil sample (100 to 1,000 ml soil) obtained as Billie did.

I welcome readers' help in trying to extend this experience and test the hypothesis above. Hopefully other stations will produce payloads as rich as James Mountain, given our "scientific" strategy.

MISCELLANEOUS NOTES AND NEWS

FLORIDA KEYS. Tide-ings reports in their February issue: "According to an article in the Detroit Free Press, January, 1990, some of the Florida Keys are for sale. If you've got the money you can own your own island. What you can do with it is another issue.

The asking price for Little Conch Key is $2.7 million. The Tarpon Belly Keys will cost $1.9 million. Development is restricted to protect the environment but zoning laws would allow construction of homes, some small stores, tennis courts, etc.

THE ZEBRA MUSSEL. New York Sea Grant Institute is very much involved with the invading Dreissena polymorpha and the effect it is having on the ecology of the Great Lakes basin. Sea Grant's publication, Coastlines, announces: "Anyone who would like further information can contact Dave MacNeill or Chuck O'Neill at the Sea Grant Extension Program, 405 Administration Building, State University College, Brockport, New York 14420." (716) 395-2638.

SLOW FOOD. An international group of restauranteurs, whose stated objective is to preserve worthy local gastronomic conditions that have been endangered by standardization and industrialization (i.e. "fast foods" — McDonald's, Pizza Hut, etc. etc.) Slow Food has selected as their symbol the snail — what else?

CAT'S EARS. Mr. Carpenter's story, reprinted on page 8 of this issue, led us to look for the seed of truth that is said to be at the root of every folk-tale. We learned that there is a breed of cats — and they've been around a long time — called Scottish Fold, in which the ears are folded over and lie so close to the head that when seen at a moderate distance they could appear to have no ears. Were these the cats whose "ears fell off" — or was it all an "April Fool" joke?

ATLAS OF THE EXCLUSIVE ECONOMIC ZONE, WESTERN CONTERMINOUS UNITED STATES. The first of-its-kind atlas of the deepwater seafloor off the west coast. Issued in 1986, the 152-page work represents nearly 650,000 square kilometers of ocean floor, and will help delineate potential energy and mineral resource targets and also reveals dozens of previously unmapped submarine volcanoes, landslides, faults, and other features.

Sea Technology 27(5):47

STATE SHELL. July 1, 1989, Connecticut designates Crassostrea virginica (Gmelin, 1791) as official state shell.

American Conchologist

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES FOR 1989-90

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

September 10, 1989
October 8, 1989
November 12, 1989
December 10, 1989
January 14, 1990
February 11, 1990
March 11, 1990
April 8, 1990
May 6, 1990 (1st Sunday)
June 10, 1990

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meetings.)

NEXT MEETING: SUNDAY, JUNE 10, 1990, at 2:00 p.m.

PROGRAM: COWRIES AND THEIR RELATIVES OF SOUTHERN AFRICA

by Robert Janowsky. (See: EVENTS, page 2)

Bob is very knowledgeable about the Cypraea, and has contributed several illustrated articles to these NOTES on interesting species.

ELECTION: 1990-91 OFFICERS AND DIRECTORS

Current Officers and Directors have accepted nomination for another term in office; their names are listed on the NOTES cover sheet. Additional nominations will be accepted from the floor.

CONTENTS

		Page
Events		2 & 12
Be Forewarned (Florida Fishing License)	Jon Greenlaw	2
Obituary: G. Alan Solem		2
Hunger and Thirst, Man and Shells	Alan Solem	3
1990 Jacobson Scholarships	R. T. Abbott	5
New Museum Will Recycle Collections	Sanibel Ed. Foundation	6
PUBLICATIONS:		
Tidepool Wonders of the Sea of Cortez	Review by B.W. Myers	6
Shells - Jewels from the Sea	Review by W.E. Sage	7
Shells	Review by W.E. Sage	7
Seashore Animals of the Southeast	Announcement, Sea Tech	8
Re: Murex	Announcements	8
Jack Rudloe's books	Announcements	9
Journal of Molluscan Studies	Mal. Soc. of London	9
COLLECTIONS:		
Warmke Collection to Florida State Mus.	Harry G. Lee	9
Research on Blue-green Algae	Sea Technology	10
Yoyo Clams Discovered in East Florida	R. Tucker Abbott	10
Sanibel Museum's Capital Campaign		10
Of the Zebra Mussel	(Several sources)	11
EVENTS, Summer and Fall Shell Shows	Donald Dan	12
Sea Monster (Cyanea capillata)	New York Times	13
Plea to Field Workers	Dorothy Raeihle	13
Highlights of Recent Meetings:		
March: Guest speaker Jon Greenlaw		
April: Annual Social and Auction		
May: Visit to Long Island Shell Show		14

ENCLOSURE: INDEX FOR NYSC NOTES 251 - 300

EVENTS

JUNE	3 - 7	American Malacological Union Annual Meeting at Woods Hole, Massachusetts. Contact: Dr. Roger Hanlon, (409) 761-2133 or 761-2101.
JUNE	10	New York Shell Club meeting at the American Museum. Robert Janowsky will be the speaker. His special presentation will be "Cowries and their Relatives of Southern Africa — A visual review of the book by Liltved." Seacomber Publications has authorized Bob to give a live-collected specimen of Cypraea fuscorubra as a door prize; everyone attending will be eligible to win this valuable shell. Bob will have with him a copy of the book, publisher's brochures, and discount order forms.
JUNE	22-24	Jacksonville Shell Show, Jacksonville Beach, Florida. Contact: Nellie Hawley, (904) 641-4606
JUNE	23-24	IX Salon International du Coquillage at Lutry, Switzerland. Contact: Dr. Ted Baer, (021) 393771 or 207371.
JULY	9 -13	Conchologists of America Convention, Melbourne, Florida. Contact: John Baker, (407) 777-2116.
AUG.	17-19	Indianapolis Shell Club's "1990 Midwest Regional Shell Show" at the Children's Museum in downtown Indianapolis. Contact: Jack Gilbody, 621 Hillcrest Court, Kokomo, Indiana 46901. (317) 452-2711.

BE FOREWARNED

All those of you who plan to visit Florida to collect live mollusks should be advised to obtain and carry with you a saltwater fishing license. Readers with questions concerning the new license can contact: Florida Department of Natural Resources, Bureau of Marine Patrol Support Services, Florida Marine Patrol, 3900 Commonwealth Blvd., Tallahassee, Florida 32399. (904) 488-5757.

Jon Greenlaw

GEORGE ALAN SOLEM

We were shocked and extremely sorry to learn that Dr. Alan Solem had succumbed to a massive heart attack on February 27th, at age 58. Born in Chicago, he earned his MA and PhD at the University of Michigan then joined the staff of the Field Museum of Natural History where he became Curator of Invertebrates in 1971.

Alan Solem was internationally acknowledged as an expert in non-marine mollusks. He did extensive field work in Australia and Pacific Islands as well as Panama and our own mid- and southwest. His many scientific reports were widely published, but undoubtedly the work best known to shell club members is his popular "The Shell Makers," published in 1974.

He was a member of international societies; he was active in the

American Malacological Union and served as their president 1969-70. He was instrumental in the founding of the Chicago Shell Club and sponsored the group in their associations with the Field Museum. He will be greatly missed.

We extend our condolences to his associates, friends, and family.

The following article and editors' note appeared in the Newsletter of the Chicago Shell Club, "Thatcheria," 24(9)/25(1):5-6, December/ January 1990:

HUNGER AND THIRST: MAN AND SHELLS

Alan Solem

> (Editors' Note: 1989 was the 25th anniversary of the Chicago Shell Club's founding. As the year came to a close, we received a letter from one of the club's founders, Ann Young, now living in Marathon, Florida. Ann told us that she recently came across a collection of some of the club's early letters, papers and first newsletters. This paper, by Dr. Alan Solem, Curator of Invertebrates at the Field Museum and internationally respected expert on land snails, was one of the first reprinted by the club in its newsletter. As a salute to our 25th anniversary, we have reprinted it again. Thank you Ann and Dr. Solem.)

We all know people who can't last from one meal to another without eating. While Mahatma Ghandi undertook several 20-day hunger strikes, this was accomplished by drinking water and fruit juice at frequent intervals. No human being can live more than a few days without water, and in a desert a man can survive less than 72 hours without drinking. Other animals are less delicate.

Recently Miss Jane Netting, an Antioch student assigned to the Division of Lower Invertebrates, was unpacking a collection of Libyan desert snails purchased from Dr. Rolf Brandt of Bengazi, Libya. The snails had been a few weeks in passage and had been collected several weeks before they were shipped. Some of the shells seemed too heavy to be empty, and Miss Netting wondered if the animals could still be alive. Some were, and four species of Libyan desert snails are now living in my office on the fourth floor of the Museum.

Without food or water, these animals have survived the dryness of a Libyan house, the cold of a transatlantic flight, and the wet cold of a Chicago March. In past years, snails from Cuba, South Africa and Europe have arrived at the Field Museum of Natural History still alive after intervals of up to several months without food or drink. Lest this seem a record, let me add that an Egyptian desert snail, Eremina desertorum, revived after more than four years of being glued to a label in an exhibition case in the British Museum, and Micrarionta veatchii, a snail from very dry Cerros Island off west Mexico, survived for more than six years in a desk drawer.

Two much longer records are doubted by some scientists, but may be accurate. Dr. Fred Baker of Stanford University had a specimen of Orthalicus capax (a Brazilian tree snail) appear crawling around his home 23 years after his collecting trip. Walter F. Webb of St. Petersburg, Florida, states that a European snail, Eobania vermiculata, given him in 1900, revived in 1920, but was dead when reexamined in 1951.

Four to six years without food or water is remarkable, and a possible 20 to 25 years is astounding. Behind these records lies a means of adapting to an inescapable biological fact - that living matter is based on water. A jellyfish is more than 95 per cent water and even a man is about 67 per cent water. Life originated in the sea. When living things colonized the land, they had to bring their "liquid environment" along and keep it liquid. There are many ways of maintaining an internal liquid environment, and there are as many papers written on methods as there are ways. Insects, flowering plants, reptiles, birds and mammals developed a hard external covering (to prevent evaporation of water from the body surface) and varied internal mechanisms for conserving water. A general treatment of water conservation in vertebrates is found in Homer Smith's From Fish to Philosopher.

Other organisms, such as snails, most worms, nearly all amphibians and, at certain stages in their life cycle, mosses and ferns, never become truly terrestrial. They can be active only during periods when air is nearly saturated with water vapor. When humidity is not high, they are inactive and must wait for the return of moist conditions. Generally they live only in areas where optimum humidity can be found, but a small number of species have adapted to living even in desert areas. All these "nonterrestrial" land organisms have some inactive stage in their life cycle that is resistant to drying out. The organism thus lies dormant until the moist conditions return. Even in deserts, a few days each year see heavy rains, or there is a morning dew. The active life of many desert organisms is compressed into the few wet days, while the rest of the year is spent in a dormant state in which the necessary functions of living are still carried on, but at such a slow rate that their condition comes close to being "suspended animation".

Each group of organisms has its own means of surviving droughts, but only the land snails will be considered here. Most species of these have a large, hard shell that is capable of holding the entire animal. By retreating into the shell, a snail can effectively reduce the area of the body exposed to the air (and thus the area from which water can evaporate). In dry regions, further protection is needed. Two ways, each characteristic of a major line of snail evolution, provide the protection.

The operculate land snails, descended from marine ancestors, have a horny or calcareous disk on the back part of their foot. When the animal draws into its shell, the disk exactly fits the opening of the shell. This closed door protects the snail from enemies, such as insects and mice, and also prevents water loss. The seal is so very effective, however, that even air is completely excluded unless special provisions are made.

The pulmonate snails probably went from the sea to fresh water and then to land. They have no ready-made door and must build a new one each time they wish to close the aperture. During July and August, large brown land snails can be found in Chicagoland woods around old logs and in leaf mold. They are inactive and have retreated far into their shells. Across the aperture is what looks like a piece of cellophane. This is the epiphragm, which serves the same functions as the disks of the operculates. In relatively moist regions (such as Chicago), it is very thin and transparent. In drier regions, the epiphragm is quite thick and opaque. The snails are inactive over dry periods, just as many mammals hibernate over the cold winters.

The snail survives by restricting its activities to periods of extreme moisture and by being quiescent through long droughts. Our relatively impervious skin and internal water-conserving devices enable us to be more or less active regardless of the weather. To maintain this activity requires constant addition of food and water, since even when we are asleep our body functions are operating at several hundred times the rate of the dormant snail. Our increased activity is maintained only by a lessened ability to go without food and drink.

Snail and man survive and occupy their respective ecological places in the world of living things. Biologically, both are equally "successful" organisms, if success is the same as survival of the species. But man uses different criteria to judge success in the living world, although I'm certain that a snail is totally unaware of such abstractions as "progress", "beauty", "truth", or "culture".

(Originally published in the Field Museum of Natural History Bulletin 29(6), June 1958.)

1990 JACOBSON SCHOLARSHIPS

Three Florida biology graduate students shared in this year's $1,000 granted by the Astronaut Trail Shell Club in Melbourne for the study of mollusks. The grants are in memory of Morris Karl Jacobson, well known to us as author, teacher, and a founder of the New York Shell Club, who retired to Florida and was closely associated with the Astronaut Trail Shell Club until his death in 1980. The recipients of the 1990 grants:

Jeffrey G. Holmquist, a doctoral candidate at Florida State University in Tallahassee, will study the ecology of mollusks living in drifting algal masses in southwest Florida. The role of "tumbleweed" seagrasses as a habitat has never been hitherto studied.

Jennifer L. Smith, studying in the Department of Geology at Tampa's University of South Florida, has embarked upon a biochemical study of naticid moon snails in order to unravel the mysteries of their fossil and Recent lineages.

Andres T. Ryan, a Canadian student at the Florida Institute of Technology in Melbourne, is working on his Master's Degree which deals with the growth rates of the local hardshell clam, Mercenaria. His results will assist future mariculture programs.

Funds for the Jacobson scholarship are raised at the annual shell show usually held every January in the Melbourne Auditorium. The Shell Club, with over 120 amateur collectors, meets the fourth Wednesday each month at 7:30 p.m. at the Congregational Church at the corner of Strawbridge and Route 1.

News Release. R. T. Abbott.

NEW MUSEUM WILL RECYCLE SHELL COLLECTIONS

Why dredge up a live Scaphella junonia or cook out a live Conch when perfectly fine specimens of their shells may be available to collectors for the asking?

The new Bailey-Matthews Shell Museum, yet to be built on San-Cap Road on Sanibel Island and now in the initial part of its fund-raising campaign, has a unique plan to recycle unwanted shell collections.

"While our main goal will be to tell the story about shells and habitat survival through our public exhibits," says Founding Director, R. Tucker Abbott, "we don't plan to be a storage attic for old, unwanted collections."

To keep these surplus shells in circulation and to help reduce over-collecting, a program is being developed to put perfectly fine specimens in the hands of science teachers and school children. According to Dr. Abbott, who was a Curator of Mollusks at the Smithsonian Institution for ten years, the idea of creating school shell collections was was first conceived by the Reverend Philip P. Carpenter in 1860 as he was working in the basement of that venerable institution sorting surplus shells from the U. S. Exploring Expedition.

Shell collections are used in biology research, as a record of past environmental conditions and are used as instructional material in classrooms. "Don't throw away your neglected shell collections," admonishes Dr. Abbott, "save them for the day that our museum has a completed building and the funds to rescue them and pass them on to appreciative students or scientists."

According to William F. Hallstead, Chairman of the Board of Trustees of the Shell Museum and Educational Foundation, the fund-raising campaign for the Bailey-Matthews Shell Museum has already reached one quarter of its goal of $1,250,000. He believes the museum will open to the public in 1992.

News Release. Shell Museum & Educational Foundation, Sanibel, Florida.

PUBLICATIONS:

TIDEPOOL WONDERS OF THE SEA OF CORTEZ

by Wesley M. Farmer. 1989, Sunlight Press. Soft cover, 84 pages, 223 figures, 7 maps. Price $4.99 plus $1.00 postage per book. (Californians add 7% sales tax.)

This small paperback is an update of the author's 70-page TIDEPOOL ANIMALS FROM THE GULF OF CALIFORNIA published in 1968. Although the dimensions of the second edition are slightly smaller, it has fourteen extra pages and several additional species. However, the 23 color photos of the 1968 work are lacking. The area covered is confined to the upper Gulf as far south as San Luis Gonzaga on the Baja side and Puerto Peñasco on the mainland. The format includes a common name, sometimes not very appropriate (Callistochiton infortunatus = Fortunate Chiton), Latin name, brief description, size, habitat and the author's personal observations. Farmer's fine detailed drawings make it easy to identify the 163 species treated. Although the promotional notes on the back cover indicate the book contains 223 species, that number is erroneous and refers to the number of illustrations, not species. An index is provided, but not a bibliography.

Written in a relaxed uncomplicated style, the book is a good introduction to the marine invertebrates of the Gulf of California and a stepping stone to the more in-depth studies of Alex Kerstitch's SEA OF CORTEZ MARINE INVERTEBRATES and Richard C. Brusca's COMMON INTERTIDAL INVERTEBRATES OF THE GULF OF CALIFORNIA.

Review by Barbara W. Myers in
THE FESTIVUS XXII(5):62 5/10/90

SHELLS - JEWELS FROM THE SEA

by M. G. Harasewych, photographs by Murray Alcosser, 1989. Rizzoli International Publications, New York. 224 pp., 211 color plates. Price: $45.00.

SHELLS

by R. Tucker Abbott, numerous photographers. 1989. Portland House, New York. 160 pp., more than 160 color plates. Price: $19.95.

These large-format, lavishly illustrated volumes should not be considered mere "coffee-table" books, designed to show the "good taste" and cultured interests of the owner. To this reviewer they are worthy additions to the ranks of shell books which have preceded them - they are books which should be learned from and shared with others. Each volume is different in scope and will appeal to a different audience, working in tandem to reinforce the interest of the collector in the beauty and desirability of the molluscan shell.

The Harasewych book, with a preface by Stephen Jay Gould and photographs taken expressly for this book by Murray Alcosser, combines a 9-page text with acknowledgments, suggested reading, index, and separate plate captions. The text is a detailed discussion of the origin and formation of the shell, shell coiling, and the molluscan animal, prepared for the "more advanced" collector. Photographs are arranged in systematic, scientific sequence, and include representatives of Polyplacophora, Gastropoda, Cephalopoda, Bivalvia, and Scaphopoda. Pictured are some truly outstanding molluscan gems - species never before presented; species which illustrate spectacular variation of shape, color, and sculpture; specimens of almost unbelievable elegance from the fabled Bledsoe collection. I have only one problem with the photographs - the unnatural background materials and colors mask the natural magnificence of the shells and, in this reviewer's opinion, fail to complement the illustrated specimens.

The Abbott book, consisting of 16 pages of text, bibliography and indices, and photographs arranged by geographic collecting localities, is written for the beginner just developing an interest in shells. The text is simpler and organized around such topics as life span of mollusks, food of mollusks, growth of the shell, homelands of shells, uses for shells, romance of shells, rare shells, fakes and freaks, and today's great shell collections - all fascinating subjects well presented. The photographs, taken from previously executed works of the author, Pete Carmichael, Alice Barlow, and others, are an excellent selection intended to showcase some of the stunning wonders of the world of mollusks. The geographic layout, with photos of exotic collecting beaches, captivates the viewer and makes the shells seem more real and the pursuit of shell collecting more inviting.

Some final comments are in order. Only 39 species, by my count, are featured in both volumes, another reason to buy each book. Share the Abbott book with newcomers; read the Harasewych book carefully and enjoy the wonderful shells shared with us. Each book has the scientific name with author and date, common name, and size, for each species pictured. There are very few errors in either book, and inconsistent, inattentive editing appears to have been kept to a minimum. Purchase both books, have fun with them, and draw your own conclusions - you can't go wrong owning these very fine books.

Walter E. Sage.

SEASHORE ANIMALS OF THE SOUTHEAST

by Edward E. Ruppert and Richard S. Fox. University of South Carolina Press. 429 pp. Hard cover. Price $34.95. Illustrated.

Illustrated guide and reference to common shallow-water invertebrates of the southeastern Atlantic Coast for all seashore enthusiasts. Each animal illustration is accompanied by a discussion of its identification, biology, and ecology. Written in clear, simple narrative style, the book is based on original observations of the authors, who are professional marine biologists. Enhancing the text are 100 full-color photographs.

Sea Technology 30(7):60 July 1989

RE: MUREX

The March 1990 issue of American Conchologist, 18(1) is of much interest to the collectors of the beautiful muricids. The lead article, pp. 3-7, is by Emily H. Vokes who asks WHAT EVER HAPPENED TO DEAR OLD MUREX? After considerable discussion she makes the rather jolting statement that "with one possible exception, THERE ARE NO SPECIES OF MUREX S. S. IN THE NEW WORLD!" Following articles on pp. 8-15 are by Roland Houart and by Charles Glass and concern other species of the family Muricidae. Photographic illustrations are lavish and well done.

THE NAUTILUS, 103(4):124-130, April 1990, carries Dr. Vokes careful study, TWO NEW SPECIES OF CHICOREUS, SUBGENUS SIRATUS (Gastropoda: Muricidae) FROM NORTHEASTERN BRAZIL. They are Chicoreus (Siratus) carolynae, n. sp., found only in Bahia, Brazil and heretofore confused with Murex chrysostoma Sowerby, and Chicoreus (Siratus) coltrorum, n. sp., also found only in Bahia, Brazil, heretofore confused with Murex (Murex) pulcher Adams.

REJOICE! At long last we publish the index for NOTES 251-300. Our deep thanks to Milton Werner, **who compiled the index.**

OF GENERAL INTEREST:

The books of Jack Rudloe — seacoast enthusiast, naturalist, conservationist, observer, story teller, and supplier of marine life to researchers — are available from Gulf Marine Laboratories, Inc., P.O. Box 237, Panacea, Florida 32346. The books are of 261 to 273 pages each and are illustrated with Jack Rudloe's own line drawings. Titles and prices (Florida residents add 6% sales tax) are:

The Sea Brings Forth. Alfred A. Knopf, New York, 1968. Paperback, $11.95.

The Erotic Ocean. World Publishing, New York, 1971. Paperback, $15.00.

The Living Dock at Panacea. Alfred A. Knopf, New York, 1977. Hardcover, $26.50.

Time of the Turtle. Alfred A. Knopf, New York, 1979. Penguin Books, New York, 1980, paperback, $11.95.

The Wilderness Coast. E. P. Dutton, New York, 1989. Hardcover, $24.50. Paperback, $12.95.

From: THATCHERIA 24(9)/25(1),25(2)

THE MALACOLOGICAL SOCIETY OF LONDON

The Malacological Society of London is celebrating its Centenary. To mark the occasion, a reduced introductory rate for the Society's publication, Journal of Molluscan Studies, is being offered to new members. The membership dues are $35.00 US. This rate is valid only for the 1990 membership-year and will include four issues of the Journal. Send payment by check to: Dr. T. E. Thompson, Zoology Department, The University, Woodlands Road, Bristol, BS8 1UG, United Kingdom.

AMU NEWS 21(1) February 1990.

FLORIDA MUSEUM OF NATURAL HISTORY RECEIVES WARMKE COLLECTION

Recently our state's natural history museum at Gainesville was given a valuable collection of marine shells by our friend, Germaine Warmke, of St. Augustine. Kurt Auffenberg reports that the focus of Germaine's collection is the marine Mollusca of the Caribbean Province. Most of her material was collected during her stay in Puerto Rico — a visit which eventuated in the publication in 1961 of her Caribbean Seashells, which was co-authored by Tucker Abbott. Many valuable hypotypes (specimens illustrated in Caribbean Seashells), Germaine's photographs and negatives used to illustrate the book, radular slides, and library were included in the bequest.

This specialized collection of molluscs will be a further boost to the museum's holdings of Caribbean Province marine shells — already enriched by the Maxwell Smith, Tom and Paul McGinty, and Margaret Teskey collections.

Harry G. Lee in Shell-O-Gram 31(2)

OCEAN RESEARCH:

BLUE-GREEN ALGAE STRAIN
REDUCES RISK OF HEART DISEASE

The University of Miami reported that a special strain of marine algae produces the same type of fatty acid that is present in fish oil — omega-3 — which is said to reduce the risk of heart disease. This strain is one of the more than 2,000 strains of marine blue-green algae and photosynthetic bacteria that Professor Akira Mitsui has collected and isolated in his laboratory at the University of Miami's Rosenstiel School of Marine and Atmospheric Science. Professor Mitsui said that the algae may prove to be a more stable and easier to handle source of omega-3 than fish oil.

Sea Technology 30(2):84.

YOYO CLAMS DISCOVERED IN EAST FLORIDA

Two new species of small, crawling clams were recently discovered by Paula Mikkelsen when she pumped out the interior of squills shrimp holes in the sand flats of Fort Pierce Inlet, Florida, not far from where she is stationed at Harbor Branch Oceanographic Institution.

Paula and Dr. Rudiger Bieler recently described the anatomy and habits of the two novel bivalves belonging to a genus newly reported in American waters, *Divariscintilla*. These strange clams hang freely by means of a byssus to the inner walls of the tubular burrows of the stomatopod shrimp, *Lysiosquilla*.

Almost resembling snails in their method of locomotion, the new bivalves are less than a half-inch in length and have the peculiar capability of hoisting themselves up and down on their byssi, much like a child's yoyo toy. One species was named *D. yoyo* Mikkelsen and Bieler, 1989, the other *D. troglodytes*, meaning "dweller of dark holes."

Paula used a stainless steel bait pump (the "Yabby pump" of Florida fishermen) to suck out 83 of her new finds from intertidal sand and seagrass flats at Fort Pierce and Sebastian Inlets. A detailed 20-page account in Malacologia vol. 31, no. 1, pp. 175-195, is available from the Academy of Natural Sciences of Philadelphia, Department of Mollusks, 19th and The Parkway, Philadelphia, Pennsylvania 19103.

R. Tucker Abbott in the CAPSULE 22(6)
of the Astronaut Trail Shell Club.

FOR SANIBEL'S MUSEUM

The capital campaign, to raise funds for building the Bailey-Matthews Shell Museum, is well under way. Richard W. Angle, a former president of the Captiva Civic Association and an experienced business man, has been named campaign chairman. He heads a team that includes two honorary co-chairmen — Raymond Burr (alias Perry Mason) and Robert Benevides. Campaign vice-chairmen are Nan Baer, Jim Lowman and Bay Gruber, with directors and members swelling the ranks. All are volunteers.

Donations are solicited, are welcome in any amount, and are tax deductible. The Foundation's newsletter, just received, offers many categories: "The Shell Museum Capital Campaign offers worthwhile opportunities for significant recognition and memorial gifts. Donors and designees will be appropriately recognized at their selected areas of interest. ... Donors of $500 or more will be permanently acknowledged in the museum. ... For detailed information, please call our capital campaign office at (813) 395-2233 between 8:30 a.m. and 4:00 p.m., EDT."

Checks payable to Shell Museum Capital Campaign may be sent to: The Shell Museum & Educational Foundation, Inc., Capital Campaign Office, Suite 9, 2440 Palm Ridge Road, Sanibel Island, FL 33957.

OF THE ZEBRA MUSSEL

Concern is mounting over the spread of the Zebra Mussel, Dreissena polymorpha (Pallas, 1771) in the short time since it was introduced into Lake St. Clair with ballast water from Europe. It is already a major environmental problem, as it reproduces so prolifically it clogs the intake pipes of power plants and consumes the microscopic plants at the bottom of the food chain supporting the native freshwater fish. Thus its impact on industry and commercial and recreational fishing will be substantial.

The newsletter of the Crown Point (Indiana) Shell Collectors Study Group, TIDE-INGS, issues of March and April, 1990 (in NYSC Library) include ten pages of ZEBRA MUSSEL UPDATE with information from official sources in Canada and the United States. We excerpt from these reports, from AMU Newsletter, and from an excellent review by Harold Faber datelined Albany, April 19, which appeared in the New York Times. First, there is an interesting record of the mollusk's spread:

1769	North Caspian Sea and the Ural River.
1771	Described by Pallas.
1820s	Hungary.
1824	London; South of the Rhine River.
1827	Great Britain.
1845	Russia - Dvina River Basin, through Mariinsk Canal System to Western Europe and still spreading today.
1940s	Scandinavian and Swiss lakes.
1970s	Italy, Finland, Ireland.
1980s	Iranian coast of the Caspian Sea.
1988	Lake St. Clair and Lake Erie (USA and Canada).
1989	Mussels on ships' hulls in dry dock at Sturgeon Bay, Wisconsin; unconfirmed report of mussels on hulls of vessels operating in Lake Superior.
1990	Zebra Mussels are now in Lake St. Clair, Detroit River, Lake Erie, Wellan Canal, Niagara River, Lake Ontario, and the St. Lawrence River at Cornwall. There are also colonies in Lake Huron on the Ontario side and in the upper St. Clair River.

Fossil record: Pleistocene (Bulgaria, Russia and Poland).

Dreissena polymorpha prefers moving water; this and the fact that their life in the plankton is from eight to ten days explains their rapid dispersal. Environmental groups, marine biologists and other concerned organizations are already monitoring the fresh waters of the Mississippi River basin. It is moving into New York by a circuitous route from the west. To monitor the spread of the mussels into New York, a research program began in March 1990 to find out how far they have penetrated into the state. Twenty monitoring stations were set up in the Erie Canal and the Hudson, Delaware, and Susquehanna Rivers by Acres International Corporation under contract with the Empire State Electric Energy Research Corporation, an arm of the state's electric industry. The results are not yet known.

In their native habitat, these zebra mussels are kept more or less under control by diving ducks, by systematic repeated flushing of water systems with heated water, and by chemicals like copper sulfate and chlorine, steel-on net and electro-filters. Our scientists have access to a vast amount of European and Russian literature; one editor alone, B. S. Kuzin, included with his publication on The Biology of _Dreissena_ and its Control (1964), a bibliography of 1180 works on _Dreissena_ published from 1771 to 1963.

In the United States, both chemical and thermal controls are being studied. Bills have been introduced in Congress to spend $4 million a year for five years on prevention programs and an equal amount on eradication. But marine biologists expressed skepticism about proposed controls. The problem is to discourage the mussels without damaging the natural species and their habitats. Robert Lange, supervisor of the Great Lakes fisheries program for the New York Department of Environmental Conservation, states that "There's really nothing that anyone knows right now to prevent them from spreading."

EVENTS

SUMMER AND FALL SHELL SHOWS

JULY	21-22	Keppel Bay Shell Show at Yeppoon, Queensland, Australia. Contact: Jean M. Offord, 277 McDougall Street, North Rockhampton, Queensland 4701, Australia. (079) 283-509.
JULY	28-29	Townsville Shell Show, Townsville, Queensland, Australia. Contact: Von Vandenburg, 12 Lillipilli Street, Vincent 4814, Townsville, Queensland, Australia. (077) 75-6275.
AUG.	17-19	Jersey Cape Shell Show, Stone Harbor, New Jersey. Contact: J. B. Sessoms, P.O. Box 24, Ocean City, New Jersey 08226. (609) 653-8017.
AUG.	17-19	Midwest Regional Shell Show, Indianapolis, Indiana. Contact: Carl Sahlberg, 7826 Camberwood Drive, Indianapolis, Indiana 46268. (317) 875-9063. (See also: EVENTS, page 2 of this issue.)
SEPT.	8-16	Oregon Shell Show, Portland, Oregon. Contact: Dr. Byron Travis, 4324 N.E. 47th Avenue, Portland, Oregon 97218. (503) 284-1365.
OCT.	5-7	Annual German Shell Fair, Wolfsburg, West Germany. Contact: Horst Fischoeder, Koenigs Str. 41, 7000 Stuttgard, West Germany. (0711) 294-140.

OCT.	6-7	Gulf Coast Shell Show, Panama City, Florida. Contact: Bob Granda, 925 Rosemont Drive, Panama City, Florida 32405. (904) 769-2876.
OCT.	19-21	North Carolina Shell Show, Wilmington, North Carolina. Contact: Dean Weber, 510 Baytree Road, Wilmington, North Carolina 28403. (919) 799-3125.
OCT.	27	British National Shell Show, London, England. Contact: Kevin Brown, 12 Grainger Road, Isleworth, Middlesex TW7 6PQ, England. (01) 568-8333.
NOV.	10-11	Philadelphia Shell Show, Philadelphia, Pennsylvania. Contact: Al Schilling, 419 Linden Avenue, Glensi Pennsylvania 19038. (215) 886-5807 or 1-800-274-8530.

Summer and Fall Schedule
Courtesy of Donald Dan.
(See also EVENTS, page 2)

SEA MONSTER

QUESTION: Does the creature Cyanea capillata, which inflicted fatal and near-fatal injuries on swimmers in the Sherlock Holmes story, "The Adventure of the Lion's Mane," really exist?

ANSWER: "Yes, said Harold Feinberg, scientific assistant in the department of invertebrates at the American Museum of Natural History in New York. "I've seen it. It has long golden-yellow streamers of poison cells."

The cold-water jellyfish might resemble a huge lion's mane, just as Sir Arthur Conan Doyle described it. Its poison acts like a neurotoxin, he said, and the effect is paralysis.

The average swimmer need not worry about meeting one unawares, however.

"It is really a colorful creature," Mr. Feinberg said. "The bell is at least three or four feet across, and the streamers drag 30 to 40 feet."

He also said that it does not frequent shallow waters and that he had only seen it on the high seas.

Reprinted from:
"Q & A" column in New York
Times, page C12, May 22, 1990.

[Cyanea is of the Order Discomedusae. The large red jellyfish of the Atlantic coast is C. arctica (Webster's International, second edition). For an illustration and discussion of C. capillata, see Jacobson & Franz, 1978, Wonder of Jellyfish, published by Dodd Mead & Co., New York.]

PLEA TO FIELD WORKERS

The latest report of Corbicula fluminea in Long Island waters was of adult specimens in the Nissequogue River. If any of you have explored further east, especially in the Peconic River system, PLEASE report whether or not you have found this species present.

dr

HIGHLIGHTS OF RECENT MEETINGS

(As the recording secretary was unable to be present at the spring meetings, the following notes were contributed by others.)

MARCH 11, 1990: Our guest speaker was Jon Greenlaw, professor of biology at C. W. Post College on Long Island. His subject was The Ecology of the Everglades, a comprehensive, informative presentation enhanced with slide photos.

The door prizes were a *Murex palmarosae*, won by Vi Greenlaw, a *Terebra maculata*, won by Ed Cowles, and a *Conus textile*, won by Jon Greenlaw.

APRIL 8, 1990: Our annual social and shell auction, held at Dorothy Jensen's studio in Astoria, was well attended and successful both socially and financially. Overheard: A remark to the effect that proof of the high quality of the material offered was the fact that *everything* was sold!

MAY 6, 1990: A nice outing to the Long Island Shell Club's Shell Show at Freeport, the show declared "excellent" by one who has seen a good many shell shows. Several of the knowledgeable visitors remarked that the judges must have had much difficulty in categorizing "good, better, and best."

This writer's time at the show was too short to do credit to all the exhibits, but between the browsing and greeting old friends we did make a few notes — and it was nice to see that several New York Shell Club members were represented.

Gene Everson's magnificent exhibit of world-wide, self-collected shells was awarded the Masters Trophy and his *Phyllonotus eversoni* from Cocos Island was named the Self-collected Shell of the Show. Ed Dunlap's *Cypraea fultoni* was named Shell of the Show, non-self-collected.

The COA award went to Fred Cannon for his most outstanding exhibit, Crown Jewels of Neptune — five cases of worldwide marine shells.

The DuPont Trophy was well earned by Jon Greenlaw for his educational exhibit on mollusks and their relationships.

The smiles of Cherita and Ernie Stark were bright enough to make their blue ribbon shine like a star as they stood by their exhibit, Shells of Sabah, North Borneo, with shells and literature from Mary Saul.

Blue ribbons also to Rae Varga for her specialty entitled "Pink in the Sea," and to Edward Dunlap for his Shell Oddities, and for his stamps. Helen Beck took four blue ribbons in the Artistic Division for her exquisite shell craft.

Jordan Star was awarded a red ribbon for his micro-shells, as was Fred Cannon for his shell oddities.

And there was more, and more, and all of it good.

We've just scratched the surface.

Shell shows do not consist merely of pretty shells lined up on a counter. There is much to learn. The exhibits are the result of study, time, work, and love of the subject. What is YOUR interest?

dr

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1990-1991

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, in Room 419, American Museum of Natural History, at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May in the usual meeting room at the Museum. The Museum is at Central Park West and 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

1990	September 9	1991	January 13
	October 14		February 10
	November 11		March 10
	December 9		April 14
			May 5 (1st Sunday)
			June 9

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day.

On meeting days Room 419 will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 419 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meetings.)

PROGRAMS

SEPTEMBER 9, 1990, at 2:00 p.m.:

Russell Jensen of the Delaware Museum of Natural History will present his slide show and talk on HUMOR IN MALACOLOGY.

OCTOBER 14, 1990, at 2:00 p.m.:

Neil Landman, Associate Curator, Department of Invertebrates, AMNH, will talk on his continuing research on living and fossil *Nautilus* and other cephalopods.

NOVEMBER 11, 1990, at 2:00 p.m.:

Mel and Sylvia Springer, of both the NY and LI shell clubs, will present a talk illustrated with color slides: SHELLING IN BALI and LOMBOCH.

CONTENTS

			Page
Annual convention reports, 1990:	AMU	Paula Mikkelsen	2
	WSM	Jules Hertz	2
	COA	Walter E. Sage	3
1991 COA convention, Long Island, NY		Walter E. Sage	4
My, How you've grown! (From COA history)		Lucy Clampit	4

PUBLICATIONS:

Monograph of Living Chitons, Volume 4. By Piet Kaas and Richard A. Van Belle	Review by W.E. Sage	5
Superfamily Strombacea from Western Atlantic. By Renato Moscatelli	Review by W.E. Sage	6
Marine Parks and Aquaria. By Anthony L. Pacheco and Susan E. Smith.	Rev. Underwater Nat.	6
1990 World Size Records	News release	7
Seashells Photo Postcards	News release	7
Opportunity for Exchange with	Koen Fraussen	8
"Point of Light" Award	Tide-ings	8
In Memorium — Helene Boswell	Xenophora	9
From Secretaria de Marina, Mexico	Bob Koch in Festivus	9
Vents, Seeps, Mussels in Gulf of Mexico	Booda in Sea Tech.	10
Summer Update on the Zebra Mussels	News	10
Io fluvialis Survives	S. A. Ahlstedt, TVA	11
Giant Clams in the Caribbean	Univ. Puerto Rico	12
Internat. Soc. Mrdical & Applied Malacol.	Nat'l Shellfisheries	12
Undersea Park, Key Largo, Florida	Sea Technology	13
For the Fish's View	Sea Technology	13
Okinawa — Then (Stimpson)	Journal	13

ANNUAL MEETINGS:

AMU

The 56th annual meeting of the American Malacological Union was held June 3 - 8, 1990 at the world-famous Marine Biological Laboratory in Woods Hole, Massachusetts. Over 250 people attended including 61 foreign participants. We met in three of the famous MBL laboratories and in the Swope Conference Center. Students were able to live at the center and our meals were taken at the excellent cafeteria. The weather was cold, windy and rainy the first few days but settled down to a pleasant cool with bright sunshine. In addition to the normal variety of contributed papers, two symposiums were held: "Behavior of Mollusks" (with a special session on Neurobiology), and "Systematics, Biology, and Fisheries of Recent Cephalopods."

A special guest of the symposium was Professor J. Z. Young of Oxford University. Dr. Young has authorized numerous books and scientific papers and is credited with the discovery of the squid's giant axon which has since proved an invaluable tool to neurobiological studies. His engaging enthusiasm for science and life, and his witty remarks, contravened his 84 years. AMU acknowledged his vast contributions to malacology with an honorary life membership.

Evening activities included a film festival which invited any and all to bring their films and videos of living mollusks doing what they do best. A workshop on home aquaria, a dealer's bourse, and the infamous auction were all well attended. A delicious outdoor New England Clam and Lobster Boil punctuated the week along with a banquet of steak and stuffed shrimp and a lively jazz band kept us dancing 'til midnight. Among the last to leave the dance floor were Dr. and Mrs. J. Z. Young.

The 1991 AMU meeting will be held in Berkeley, California.

Paula Mikkelsen in the CAPSULE 23(2) of the Astronaut Trail Shell Club, July 1990.

WSM

The 23rd annual meeting of the Western Society of Malacologists was held June 18 - 22, 1990 at McCarty Hall on the campus pf the University of Washington in Seattle. There were approximately 40 people in attendance for two and a half days of papers and additional business, social and field events. The highlight of the meeting was an all-day symposium on "Current Directions in Alaskan Malacology." This diversified symposium included papers on mariculture, bivalves, predation on bivalves by sea stars and walruses, cephalopod remains from marine mammal stomachs, a terrestrial mollusk fossil assemblage, the family Oenopotinae (Gastropoda: Turridae), and opisthobranchs. The remainder of the technical sessions included papers on terrestrial slugs, nudibranchs, bivalves, freshwater and marine gastropods, and miscellaneous associated subjects. ...

In addition to the formal program there were slide shows the first two nights of the meeting. ... The hit of the social events was the auction of books and shells ... The final social event was the banquet held at the Faculty Club.

The last morning there was a field trip to the Anacortes area led by Roland Anderson. This included stops at three sites: the first having a muddy substrate, the second a sandy beach, and the third a rocky area. Although collecting was rather limited we were able to see a good variety of animals.

We are particularly indebted to Roland Anderson, who was always available to help attendees and who put together a very interesting program which was always on schedule. We are also indebted to the Pacific Northwest Shell Club and in particular Elsie Marshall for the many shell gifts, support of the social functions, and for arranging to take attendees to view the behind-the-scenes shell collection at the Burke Museum.

Jules Hertz in THE FESTIVUS
XXII(7):86, July 12, 1990
San Diego Shell Club publ.

COA

The 1990 convention of the Conchologists of America was held July 9 - 13 at Melbourne, Florida. Early registration was held at the Holiday Inn Oceanfront on Sunday afternoon, July 8, followed the next morning with registration, Board/Committee meetings and in the afternoon by welcoming ceremonies featuring the Patrick Air Force Base Color Guard and welcome by Doris Underwood and John Baker, Astronaut Trail Shell Club members and COA 1990 Co-Chairpersons, and Peggy Williams, COA President. Dr. R. Tucker Abbott and Richard Goldberg began the excellent series of slide programs later in the day. That evening, the Astronaut Trail Shell Club members hosted the traditional welcoming party by the pool behind the hotel overlooking the beach. One of my personal highlights of this most memorable convention took place later that night when several of us saw the sea turtles trundle ashore to dig nests and lay their eggs in culmination of their yearly ritual.

On Tuesday morning there was the first session for shell club members to buy and trade their respective club pins and other items. This was also the first day of the always popular silent auctions, which distribute desired items to successful bidders while enriching the COA treasury. Slide programs were given by Joan Caldwell, Bea Winner, Dr. Emily Vokes, Dick Forbush, and Peggy Williams. That evening, approximately 80 of our group boarded buses for the drive to Kissimmee, where they thoroughly enjoyed the journey back in time at Medieval Times.

Club and COA sales continued on Wednesday morning, while an eager group of divers embarked for West Palm Beach; they successfully brought back a number of live mollusks. Slide programs were given by Bob Lipe, Dr. Eliezer Rios, Bruce Crystal, Kevan Sunderland, and James Ernest. An important meeting for COA club representatives was held in the afternoon, and that evening all enjoyed the annual auction, at which Marty Gill excelled in awarding many choice items to lucky and determined bidders.

Activities continued on Thursday with a video program by Don Pisor, followed by a preview of the 1991 Long Island convention, scheduled to be held July 8 - 12 at the former Royce-Carlin Hotel, Melville, New York, now called the Huntington Hilton. Walter Sage gave pertinent details of the 1991 plans, and Lynn Nathanson showed the Long Island Shell Club's slide program, followed by her slides of the hotel. We also saw a video provided by the Long Island Tourism Bureau entitled "The Good Life on Long Island." The COA annual business meeting concluded the morning's activities. The fabulous Dealer's Bourse took place from 4 - 10 p.m. — does anyone have an accurate count of how many Cypraea fultoni were available?

On Friday the Dealer's Bourse continued from 9 a.m. - 2 p.m., after which the Grand Caribbean Ballroom was converted into our banquet room. Also that morning, approximately 50 of the group gathered for the bus ride north to SpaceportUSA, at Cape Canaveral. This is reported by all attending to have been a wonderful experience. In the evening the annual banquet and closing function was held, and we were royally entertained by our British guest, S. Peter Dance, who spoke on the conchology of Oman and Masirah Island.

Saturday morning saw us all rushing to check out by noon so that the superb staff of the Holiday Inn could prepare for the onslaught that afternoon of the convention of the fire chiefs of the state of Florida. The checking out went as smoothly as all the events of the week. The 300 registrants have many memories to savor, each better than the one before. The host club members have passed the gauntlet of a most successful meeting to new President Henry (Hank) Foglino and the members of the Long Island Shell Club. We look forward to equalling the achievement of having participants from 26 states and 8 foreign countries take part, and we invite all COA members to come join us in July 1991 for the "Good Life in Long Island, New York."

Walter E. Sage, July 22, 1990.

1991 CONCHOLOGISTS OF AMERICA CONVENTION
LONG ISLAND, NEW YORK

COME ONE, COME ALL - for the shelling experience of your life! July 8 - 12, 1991 will be the dates; the Huntington Hilton, Broad Hollow Road, Melville, Long Island will be the place; the Long Island Shell Club is eager to be your host, and the activities are guaranteed to keep you shell-shocked the entire week! Included will be slide talks by experienced and knowledgeable collectors; auctions and raffles you won't want to miss; the legendary Dealer's Bourse, and a banquet finale with a guest speaker we're certain you will enjoy.

NOW is the time to begin planning to join us next Summer on Long Island. Come share the Good Life, the old-fashioned way — Long Island, New York! For further information, write to: Walter E. Sage, COA Treasurer and 1991 Co-Chairperson, P.O. Box 8105, Saddle Brook, New Jersey 07662. You WILL be glad you did!!

WES 24 July 90

MY, HOW YOU'VE GROWN!

Next year the COA will convene for the 20th time. Their historian, Lucy Clampit, has compiled: COA HISTORY (1972 - 1989) from which we quote:

John Paduano of Newport, Rhode Island, began collecting seashells during his career in the U. S. Navy. Tours of duty in tropical areas enabled him to amass an exceptionally large shell collection. After retirement at age 55, he decided to try and fulfill his dream to organize all known shell collectors. Using the Petit Directory of Conchology, in June of 1972, he embarked upon this ambitious project.

In October of 1972 the Conchologists of America organization was born. October 16, 17 and 18 found eight enthusiastic shell collectors meeting at the Newport Motor Inn. They were: Kirk Anders of Fort Lauderdale, Florida; Mrs. Robert Armstrong of Westford, Massachusetts; Carl Erickson of Auburn, Massachusetts; Dorothy and Robert Janowsky of Brooklyn, New York; Mrs. Betty Rachlin of Brookline, Massachusetts; Miss Mavis Walkup of Clovis, New Mexico and, of course, John Paduano.

John served as host for this first convention. He arranged for Dr. Harold Snyder, Professor of Biology at Barrington (Rhode Island) College, and Dr. Nelson Marshall of the University of Rhode Island Graduate School of Oceanography to be speakers at the first COA banquet.

. . . .

(At the 1973 convention) the constitution and by-laws were unanimously accepted ... They officially established the Conchologists of America and its purpose "to unite shell collectors and clubs in the United States and promote conservation and interest in shell collecting. The emphasis of this organization shall be on CONCHOLOGY rather than Malacology." Any person interested in Mollusca could become a member.

(End of quotes.)

From 8 charter members in 1972 the organization grew steadily; the 1989 count of memberships was 1,105. Their Bulletin has developed from a few typed pages to their excellent publication, American Conchologist. For all of which, we offer our congratulations.

PUBLICATIONS:

MONOGRAPH OF LIVING CHITONS (MOLLUSCA: POLYPLACOPHORA)
VOLUME 4. SUBORDER ISCHNOCHITONINA: ISCHNOCHITONIDAE:
ISCHNOCHITONINAE (cont.). ADDITIONS TO VOLS. 1, 2, & 3

by Piet Kaas and Richard A. Van Belle. 1990. E. J. Brill, Leiden.
298 pp., 117 black and white figs., 48 maps. Hardcover - $47.50.

This 4th volume of a planned 10 volume revision of the Polyplacophora follows the same format as the preceding volumes. In addition to the scientific name, author and date, type and type locality are provided, followed by a detailed description, clearly delineated figures, distribution, and observations.

Additions to volumes 1, 2, and 3 cover 17 pp., 7 pp., and 25 pp., respectively, and include information on recently described or documented species. In these addenda, the following new species are described as new to science: *Leptochiton (L.) xanthus*, Gibraltar Straits; *L. (L.) amsterdamensis*, Amsterdam Island, southern Indian Ocean; *L. (Parachiton) indecorus*, South Africa; *Callochiton herberti*, South Africa; *C. neocaledonicus*, New Caledonia; *Chaetopleura (C.)*

natalensis, South Africa; Lepidozona (L.) tenuicostata, West Mexico; L. (L.) sirenkoi, West Mexico.

The bulk of this volume is comprised of nearly 200 pages which treat in detail additional species of the genus Ischnochiton Gray, 1847: one species of the subgenus Ischnoradsia Shuttleworth - I. australis; eight species of the subgenus Stenosemus von Middendorff, including the new species substriatus, Cape Verde Islands; bigranosus, South Andaman Island; baliensis, Bali, Indonesia; chaceorum, West Mexico. The authors also list 2 species as having unknown habitat; 3 as doubtful names; 2 as of uncertain status. The new genus Leloupia is created for the species Leptochiton belgicae Pelseneer, which is said to have an assemblage of characters that cannot be placed within an existing genus.

Completing this volume are 16 pages of reference, 18 pages of locality maps, a 7 page index, and a statement that Volume 5 will conclude Ischnochitoninae and proceed to Callistoplacinae and Mopaliidae. This series is certain to be invaluable to anyone interested in chitons, and readers are urged to obtain copies and make use of the information therein. We look forward to the remaining volumes.

Walter E. Sage

THE SUPERFAMILY STROMBACEA FROM WESTERN ATLANTIC

by Renato Moscatelli. 1987. Published by the author in English and Portuguese editions. 132 pp., 38 pages of color photographs, no price indicated. Address: Sr. Renato Moscatelli, Rue Gracindo De Sa 39, Sao Paulo SP 01443, Brasil, Sud America.

I have unintentionally overlooked reviewing this 6 x 8 inch, softcover book and want now to call it to the attention of all collectors interested in the marine mollusks of the western Atlantic. The author has made this group of mollusks his particular study and shares with us his voluminous notes on the several species of Strombidae and the single member of the Aporrhaidae. The color photographs illustrate the variation within a species that is discussed in the text. Ecological and life history information is presented, and an extensive bibliography supplements the species treatments.

The author is to be commended for giving us this in-depth look at these snails which we all notice but usually fail to remark upon. This work is a good example of the type of contribution that can be made by an individual conchologist willing to undertake the cost of such a project. This is most definitely a book from which many of us can learn, especially in that it incorporates such a wealth of data about the Strombacea. You will enjoy it.

Walter E. Sage

MARINE PARKS AND AQUARIA

by Anthony L. Pacheco and Susan E. Smith. Lyons & Burford, New York. 164 pp. Paperbound, $9.95.

A visitor once described the long-since-gone Philadelphia Aquarium as "dankly carved into the stone sides of the Schuylkill River, a collection of gloomy tanks sheathed in sweating glass, housing huge, colorless fish in dirty water."

Aquariums have come a long way since then, as catalogued in this commendable guide. There are huge facilities (Texas, of course, claims the largest, in San Antonio), and the layouts and displays are bright and natural. The new aquarium at Monterey, California, has its own kelp forest and a wave making machine. The aquarium in Chattanooga, Tennessee, will specialize in freshwater systems — rivers and ponds — with forests, mountains, trout streams, deltas, otters, alligators, swamps, snapping turtles, and water moccasins.

The effort now is to try to reproduce the real thing, not just fishes in tanks, but this should not discourage visitors from places like the Shedd Aquarium, a striking facility.

This book also lists some of the good museums with real boats, the smell of tarred rope, and antique fishing gear.

A worthy addition to the naturalist's library and the most recent American Littoral Society Book published by Lyons & Burford. In stock now at Society headquarters at Sandy Hook, Highlands, New Jersey 07732. [Telephone (201) 291-0055]

Review in Underwater Naturalist 19(1):31

1990 WORLD SIZE RECORDS

This new, fourth supplement to Wagner and Abbott's 1977 Standard Catalog of Shells has just published results from 22 museums and over 350 privately held collections. All told, maximum record sizes are listed for 2,280 species, in over 450 genera. [This is approximately double the number of species listed in the second supplement (October 1982, pp. 80-0001 - 80-0025) — and the editors also point out that many records from earlier editions may now be outdated. -dr]. The Philippines, west Mexico and Taiwan lead in having the most records.

The editors, Wagner and Abbott, believe that many new records lurk in museums where scientists do not have the time or the inclination to measure largest specimens. Some long-established museums, like the British Museum in London, have many world records because their specimens were collected over 200 years ago when over-collecting by too many starving coastal peoples was not a serious problem.

The 1990 WORLD SIZE RECORDS is published by and may be obtained from American Malacologists, P. O. Box 1192, Burlington, Massachusetts, 01803. Price: $9.00, postage paid.

News release.

Fund-raising postcards:
SEASHELLS PHOTO POSTCARDS

by R. Tucker Abbott. 1990. Original copublication of Dover Publications, Mineola, NY and The Shell Museum and Educational Center, Sanibel, FL. 24 full-color cards. Introduction. Captions. Notes. 16 pp. 9 x 12. Saddlewired, Paper 26283-9.

The Shell Museum and Educational Foundation on Sanibel Island has come up with a sheller's delight in the form of this large booklet containing 24 removable postcards showing colorful photographs of unique shells; the prints made from color transparencies in the Museum's Shell Vision Bank.

The booklet has a lively text by Dr. R. Tucker Abbott about each pictured species and the story of the new Shell Vision Bank. The proceeds from the sales of the postcards go towards the new educational foundation on Sanibel. A single copy sells for $4.95 plus $1.05 for mailing and sales tax. Some collectors will want two copies ($11.00), one for their library, the other for correspondence. Remit to:

The Shell Museum, Box 9, 2440 Palm Ridge Rd., Sanibel FL 33957.
or to:
American Malacologists, Inc., P.O. Box 2255, Melbourne FL 32902.

News release.

OPPORTUNITY FOR EXCHANGE

A collector residing in Belgium who is also a member of the British Shell Collectors' Club, wishes to exchange for North American shells — marine, land and freshwater. He sends an extensive and detailed list (12+ pages) listing world-wide, European (North Atlantic), and Mediterranean marine shells, and European land and freshwater shells. He is particularly interested in acquiring ALL BUCCINIDAE — world-wide, arctic to tropical, but also has a high interest in other families, which he names.

His list has been placed with Walter Sage at the AMNH to be made available to interested members. To correspond, write to:

Koen Fraussen, Leuvensestraat 25, 3220 Aarschot, Belgium.
Tel.: 016/29 17 62

"POINT OF LIGHT" AWARD PRESENTED TO REEF RELIEF

President Bush personally presented a "Point of Light" award to Reef Relief, a non-profit organization in Key West, Florida, dedicated to the preservation of Florida's reef tracts. The award is given to volunteers in the private sector, honoring either a group or an individual each day of President Bush's administration.

Reef Relief received the award in recognition of the reef mooring buoy project established by its volunteers. Along with the help of Key Largo Marine Sanctuary Biologist John Halas and Looe Key Sanctuary Director Bill Causey, 83 buoys at six reef tracts have been installed.

The buoys eliminate the problem of boats inadvertently dropping anchor on and devastating Florida's fragile living coral reef system which is the largest in North America.

* * *

The American Littoral Society, and Project Reef Keeper will conduct a diving survey expedition October 21 - 27 in the Exumas. For information: American Littoral Society, New College/USF, 5700 North Tamiami Trail, Sarasota, Florida 34243. (813) 351-3886.

From TIDE-INGS 22(8):5, June 1990.

IN MEMORIAM
HELENE BOSWELL

A great figure in Conchology is no longer with us. Helene Boswell died the 16th of June at her estate near Pietermaritzburg (Natal - South Africa), after having struggled valiantly against her sickness for years.

All the collectors of the world know of Helene Boswell through one or another of the large number of species that were named in her honor and of which she was often the discoverer: *Cypraea helenae*, *Mitra boswellae*, *Volutocorbis boswellae*, *Latiaxis tortilis helenae*, *Colubraria boswellae* are some examples.

A specialist in Volutes, her fantastic collection of this superb family was bought by John E. DuPont who made a special trip to carry them with him; Helene sold them to him, parting sadly with her beloved collection, after her first operation. However, she was not slow to build up a second, almost as beautiful as the first! This indomitable woman was not one to give up.

When her illness became aggravated, she transferred her fabulous library of old books — now in great part at the Natal Museum — then, family by family, the main part of her collection... But she always kept the shells that she had obtained through exchange with faithful friends, among them Georges Markens; on each of his numerous trips through South Africa, he never failed to spend a day with Helene Boswell. They had a friendship of thirty years. There remains an abundant correspondence and a number of shells.

Deeply interested in all the natural sciences, Helene Boswell was also a specialist in the plantes grasses (*Crassula*) and her name is well known to numbers of botanists.

Known through the entire world, her memory will live on.

To her husband Stanley we extend sincere condolences.

A translation from XENOPHORA No.50
Assoc. Française de Conchyliologie

FROM THE FEDERAL "SECRETARIA DE MARINA" OF MEXICO

In an undated memo from the "Secretaria de Marina" is an announcement of a "Fight Pollution Campaign in Puerto Penasco" which states the following: "Mexico has launched a new program for the conservation of nature called ECO-TOURISM (Ecology through Tourism). They request of all residents and visitors to their country to protect and not destroy plants, marine invertebrates, birds, or any marine life of the beaches and intertidal zones. It is PROHIBITED to capture Totoba (White Sea Bass), sea turtles or the California Harbor porpoise." The memo continues, adding that "It is forbidden to ride any vehicle (auto, truck, motor cycle, ATV, buggies, etc.) along the beaches. First offense, your vehicle will be detained and you [will] be required to clean trash from the beach. Second offense is confinement in jail and a fine." Additionally, the rules forbid burying trash in the sand or making bonfires on the beaches.

FESTIVUS XXII(8):01; excerpt Cholla Chatter by Bob Koch, Phoenix, AZ.

OF VENTS, SEEPS AND GIANT MUSSELS FOUND IN THE GULF OF MEXICO

Giant tube worms, some nearly 5 feet long and over an inch diameter, and nearly foot-long mussels that appear to be new species, have been found in the Gulf of Mexico. They are the first found at depths greater than 3,200 feet there. They are similar to and only slightly smaller than the world's largest tube worms found around hydrothermal vents near the Galapagos Islands in the eastern Pacific Ocean.

Preliminary analyses indicate that symbiotic bacteria in the gills of the Los Alaminos Canyon mussels break down hydrogen sulfide as an energy source, as do the hydrothermal vent mussels in the Pacific. Other mussels found at seep sites in shallower areas of the Gulf derive their nourishment from methane.

The tubeworms and mussels are growing on or near carbonate rock outcroppings near hydrocarbon seeps at a depth of 9,000 feet in the canyon area.

Scientists working 200 miles east of Galveston, Texas, using the submersible ALVIN also found another phenomenon, an undersea river of supersalty water feeding a massive pool of brine 215 miles southwest of New Orleans.

The super-salty river flows into a 20,000-acre brine pool at depths of 6,400-7,000 feet in the Orca Basin on the Louisiana Slope. Dr. James Brook of Texas A&M's Geochemical & Environmental Research Group said that the dives confirm that there are prolific cases of tubeworms and mussels at oil and gas seep sites in the deep waters of the Gulf of Mexico and that hydrocarbon and salt seeps profoundly impact the geology.

The studies are intended to help scientists understand better the potential impact of any future oil and gas development on the northern Gulf's ecosystem in waters deeper than 3,300 feet, the curremt depth limit of oil and gas drilling in the Gulf.

From: EDITOR'S CORNER, by Larry Booda,
in SEA TECHNOLOGY 31(6):79, June 1990.

SUMMER UPDATE ON THE ZEBRA MUSSELS

First, a brief review: Ever since world-traveling cargo ships began plying the waters of the Great Lakes and St. Lawrence Seaway, non-native freshwater and marine animals have hitched a ride and found a niche in the Great Lakes ecosystem. The latest invader, _Dreissena polymorpha_ (Pallas, 1771), is known as the zebra mussel and its impact is proving to be profound. They reproduce rapidly and in great numbers, growing in thick mats on almost any surface in moving water. They thrive in water pipes and can (and do) clog industrial and municipal intake facilities. The ecological effects will be very difficult to counter: As proficient filter feeders of phytoplankton, they leave the water clear and barren, thus they threaten to disrupt the food web and ecosystem balances.

First recorded in Lake St. Clair in 1988, zebra mussels can now be found in all of Lake St. Clair; all of Lake Erie; the Niagara River, the southwest corner of Lake Ontario; the St. Lawrence River from slightly downstream of Lake Ontario to the New York State/Province of Ontario border; the far northeast corner of Lake Ontario; Green Bay on western Lake Michigan and Duluth Harbor at the far west end of Lake Superior.

The information in this "Summer Update..." was supplied by New York Sea Grant Institute's COASTLINES 20(1) and NYSACC NEWS 16(1) and differs little from that of last spring (see NOTES 315.11). Meanwhile both state and federal governments have made substantial grants to scientists and other workers to speed their studies. And industry is taking a part: Sea Technology 31(2):63 reports that Battelle, a chemical company, is developing a technology for a polymer made with organic materials, of very low toxicity, anti-fouling (hulls, pipes, docks, etc.), yet environmentally safe. "The toxicity level is very low but also very effective in making organisms so uncomfortable that they will not attach to a surface containing the polymer." Such a compound on fishing and pleasure craft could prevent the spread through rivers and canals by hitch-hiking zebra mussels, which at this time seems inevitable.

IO FLUVIALIS SURVIVES

The River Snail, Io fluvialis, is the snail whose illustration has long embellished the letterheads, etc., of the American Malacological Union. Years ago its principal habitat was invaded by a flood of chemical pollution, destroying its stations, killing the snails. Being so scarce anyway, it was feared that the species might become extinct. Thus we are pleased to find encouragement in the following report, an abstract in the AMU program for 1990:

> THE SUCCESSFUL REINTRODUCTION OF THE SPINY RIVER SNAIL, IO FLUVIALIS (Say, 1825) (GASTROPODA: PLEUROCERIDAE) INTO THE NORTH FORK HOLSTON RIVER IN SOUTHWEST VIRGINIA AND EAST TENNESSEE.
>
> Steven A. Ahlstedt, Water Resources, Aquatic Biology Department, Tennessee Valley Authority, Norris TN 37828
>
> Following pollution abatement in the North Fork Holston River, southwest Virginia, in 1972, routine monitoring of the river indicated fish and benthic macroinvertebrates were recovering rapidly in the river. In 1978, the spiny river snail, Io fluvialis, was reintroduced into the river at two sites in the lower North Fork Holston, along the Virginia and Tennesee borders, and subsequently, in 1979, at one additional site in the upper river above Saltville, Virginia.
>
> Successful reproduction of transplanted specimens was first observed in 1986, downstream from the two lower transplant sites at Cloud Ford. Quantitative sampling in 1987 and 1988 reported population densities comparable to the best remaining native populations in the Clinch and Powell Rivers. Recent sampling in 1990, at the upper transplant site above Saltville, Virginia, also confirmed successful reproduction of spiny river snails. This demonstrates that transplants should be considered a viable technique (long term) for re-establishing aquatic faunas in river systems that have suffered similar pollution problems.

GIANT CLAMS IN THE CARIBBEAN

We are aware of three projects in the tropical/subtropical Atlantic which are culturing Pacific giant clams (Tridacna spp.). We have contacted one project in Bonaire, Netherlands Antilles (with 600+ clams), we are attempting to contact one in Florida, USA, and we are searching for one in the northern Caribbean. Our project is not against businesses and is not anti-aquaculture. Our primary concern is ensuring that these clams have been screened for obvious parasites (such as Perkinsus spp.) and diseases. We hope to cooperate with the culture projects and with clam experts in the Pacific to prevent any diseases or parasites from being transmitted into the Caribbean. Such vigilance actually benefits the aquiculture community and protects existing fisheries resources in the region.

We wish to contact any projects in our area which are culturing giant clams. We welcome any suggestions or cooperation in solving this problem. We appreciate the help of the Caribbean Aquaculture Association in searching for these clam projects. We leave the question of whether these animals would be a pest or a prodigy for the Caribbean to the theologians.

Ernest H. Williams, Jr. and Lucy Bunkley-Williams,
Caribbean Aquatic Animal Health Project, Department
of Marine Studies, University of Puerto Rico, Lajas,
Puerto Rico 00667-0908 (Tel. 809: 899-2048 Ext. 211).

From National Shellfisheries Assoc. Newsletter, 1990

INTERNATIONAL SOCIETY FOR MEDICAL AND APPLIED MALACOLOGY

Recognizing the need for a malacological organization devoted specifically to the concerns of applied malacology, i.e., to medical, veterinary and agricultural malacology, a group of medical, veterinary and general malacologists meeting at Los Tuxtlas, Veracruz, Mexico, in 1984 initiated such an organization, the International Society for Medical and Applied Malacology. This organization focuses its attention on mollusks as mediators of parasitic diseases of human and other animals, and as pests to agriculture, materials, etc. Annual dues for membership in the Society are US $25.00, or equivalent, and should be sent to the International Society Medical and Applied Malacology, P.O. Box 2715, Ann Arbor, Michigan 48106, U.S.A., or to Sociedad International de Malacologia Medica y Aplicada, Aparto Postal 21360, Coyoacn, Mexico.

The Society publishes the Journal of Medical and Applied Malacology. Members receive the journal free of charge. Institutional subscription is US $50.00, or equivalent, per year.

The Society also sponsors congresses on medical and applied malacology at periodic intervals. The First International Congress on Medical and Applied Malacology was held in Monterrey, Mexico, in June 1987; the Second was held June 25-30, 1990, in Seoul, Korea. For more information, please write to the secretary of the Society.

National Shellfisheries Association
Newsletter, Lewes, Delaware. 1990.

UNDERSEA PARK OPENED

A new attraction, Key Largo Undersea Park, opened its gates in Key Largo, Florida, last November 3rd. The park is the site of what is claimed to be the world's only undersea hotel, Jules' Undersea Lodge.

The park and lodge together form an undersea resort open to the general public. Visitors to the complex will be led on guided snorkel tours in a protected lagoon.

The park is located close to the Key Largo state and federal underwater reserves. The research portion of the complex is the Marine Resources Development Foundation. Ian Koblick is president of the foundation and park.

Larry Booda in Sea Tech. 30(12):79.

FOR THE FISH'S VIEW:

Japan's first tourist submarine, the Moglyn, was launched from the Kobe Shipyard & Engine Works, which is owned and operated by Mitsubishi Heavy Industries Ltd.

Although the 40-passenger submarine was Mitsubishi's first attempt at building a submarine solely for sight seeing, it was not its first submersible. The firm also built the Shinkai 6500, a deepsea manned research submersible.

The Moglyn has an overall length of 18.9 meters, is 3.5 meters wide and 3.55 meters high, and can dive as low as 50 meters.

The Moglyn is currently being operated off the shore of Okinawa by Japan Submarine Tourism Co. Ltd. in a joint venture with five other companies, including Mitsubishi.

Sea Technology 31(1):74

OKINAWA — THEN

[In 1853 the United States sent out the North Pacific Exploring Expedition, with six ships. Its purpose was to obtain knowledge of the seas surrounding Japan and the extreme northern regions of the Pacific Ocean. The naturalist chosen to accompany this three-year-long expedition was William Stimpson, who was already known for his dredging and other work along the Atlantic coast. Richard I. Johnson, of the Museum of Comparative Zoology, gives us this information in his The Recent Mollusca of Augustus Addison Gould, Bulletin 239, Smithsonian, 1964. He remarks: "I will let Stimpson tell his own story by presenting excerpts from his unpublished journal." The following excerpt describes Okinawa.]

November 17, 1854. Anchored near some sandy coral islands near Napa Harbor. Great Loo Choo [Okinawa] is the largest and most southerly of the chain of islands which extend southward from Japan. It is about sixty miles in length and rather less than twenty in average breadth. The land is moderately elevated. In the southern part is the capital town Shui, a distance of about three miles from Napa, the chief port. Half a mile north of Napa is Tusui.

At this place our boats usually landed, and for its convenience a spot was selected here for our shore establishment.

[Dredging was not too successful.] As is usual in tropical and subtropical countries the sandy and muddy bottoms in depths exceeding two fathoms are almost barren of marine animals. Wherever there is coral, the marine fauna seems always to be almost entirely concentrated upon it, and while its groves afford a rich field, but little can be found on the other stations of the locality. In zoology, Loo Choo may be said to be chiefly distinguished for the number and variety of its shells. We obtained nearly four hundred species during the time of our stay. It should be mentioned however, that but few of these were obtained alive, as our chief collecting ground was the beach northward from Tusui.

Here one might have spent many days in active search without exhausting its riches, for after the larger and more beautiful species were collected, there remained a host of minute shells, mostly valuable only to the systematic conchologist, which really seemed interminable in number, for each handful of coral sand would afford a new form. The search of this beach offered an unfailing resource, whenever the other objects of our collecting excursions proved unattainable. The living shells, with a considerable variety of other marine animals were obtained chiefly on the outer reefs, which run parallel to the shore at a distance of a mile or more.

The chief ground for terrestrial collecting was a range of well cultivated level land lying along the shore north of Tusui, and overhung by a cliff of coral rock . . . much of this land was terraced and portions of it ditched banked into paddy fields, the water being supplied by two or three springs which gushed out of the base of the cliffs. Here were found several species of Melaniae and other fresh-water shells, one of which will form a new genus resembling Rissoa. Land shells of half a dozen species were found on the shrubs and among the piles of stones. Two of these (Helices) are common to Loo Choo and to nearly all the Japanese Islands and China. A small Trochus-like Helix and a Truncatella occurred at the foot of the cliffs.

December 13. Sailed from Loo Choo [Okinawa].

December 18. Made land. The islands of the Chinese coast near Chusan. Did not land, but left the survivors of the wreck of the W. H. Layward [who were picked up on Okinawa] with the clipper Nightingale.

December 23. Among the rocky islands of the S.E. Japanese coast.

December 28. Rounded the "Peak Horner" - a regularly conical mountain of some 2000 feet in height, and commenced beating up Kagoshima Bay. At each tack I threw over the dredge, and got a variety of small shells, chiefly of a curious genus allied to Margarita. Spent nine days in the Bay. Were invited to leave by local authorities, but demanded wood and water, since by Perry's treaty United States ships could visit any port when distressed for supplies. Dredging was good in the Bay.

NEW YORK SHELL CLUB ANNUAL SOCIAL/AUCTION, April, 1990

Our annual social/auction was a great success, both socially and financially, due to the generosity of members and friends. Our special thanks go to Dorothy Jensen for the use of her Dance Studio again, and to Sol Weiss who was the auctioneer. In addition to those who participated in the auction and bought bargain table shells, many donations of shells, books, paintings, and food were received, and - most important of all - many helped by sorting and bagging shells, preparing mailings, preparing food, and helping in many ways during the auction itself.

We wish to acknowledge the help and donations received from the following people, and thank them all! (The names are listed in no specific order and are not related in any way to the type of help or donations. We hope we have not omitted anyone; if so, it was unintentional and please let us know.)

Dorothy Jensen
Walter Sage
Arline Reimann
Irving Hoppenwasser
Rae Varga
Mary Anne Bastek
Carol Lindsay
Romuald Crepulkowski
Allen Aigen
Al Scarpetti
John Cole
Sol Weiss
Nick Katsaras
Hans Reimann
Henry Gordon
Theta Lourbacos
Scott Many
Linda Ciaston
Paulina Konarska
Ed Cowles
Betty Renman
Larry Potter

As you know, many of the shells for the auction and bargain table were part of the legacy to the Shell Club from Veronica Parker-Johns. In accordance with the terms of this bequest the Shell Club has donated $560 to the William E. Old/VP Johnson Malacology Fund of the American Museum of Natural History.

OFFICERS AND DIRECTORS,
NEW YORK SHELL CLUB

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1990 - 1991

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, at the American Museum of Natural History at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May at the Museum. The Museum is at Central Park West and 79 Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

1990	Sept. 9	Rm. 419	1991	Feb. 10	Rm. 319
	Oct. 14	Rm. 419		Mar. 10	Rm. 319
	Nov. 11	Rm. 419		Apr. 14	
	Dec. 9	Rm. 319		May 5	Rm. 323
1991	Jan. 13	Rm. 319		June 9	Rm. 319

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day. (Note the different meeting room.)

On meeting days, our meeting room will be open at 1:30 P.M. for informal conversation and discussion.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History. (Present your membership card for admission to the Museum for the meetings.) (NOTE THE CHANGE TO ROOM 319.)

PROGRAMS

DECEMBER 9, 1990, at 2:00 p.m.

Richard Goldberg will present LAND SHELLS UNDER THE LENS, Part II — a more in-depth look — of land snails in the rain forest.

JANUARY 13, 1991, at 2:00 p.m.

To be announced

FEBRUARY 10, 1991, at 2:00 p.m.

To be announced

CONTENTS

		Page
Obituaries: Helene Avellanet; Mae Lackner	Editor	2
Highlights of the June Meeting	Milton Werner	2
1991 Winter & Spring Shell Shows & Events	Donald Dan	3
AMU & WSM Joint Meeting, Berkeley	Festivus	4
COA Convention at Melville, Long Island	Walter E. Sage	5
Collecting Fossils — Why Bother? by Emily H. Vokes. (A condensation)	Junonia, San.-Captiva	6
Eddison Collection to AMNH	Editor	7
Of Sea and Shore resumes publication	Announcement	8
Sowerby Reborn	R. T. Abbott	8
Sowerby's Book on Shells. Review by	Walter E. Sage	9
Wagner & Abbott's World Size Records 1990. Review by	Walter E. Sage	9
Seashells (of the Northern Hemisphere) R. T. Abbott. Announcement by	Amer. Malacologists	10
Living Terebras of the World Bratcher & Cernohorsky. To Los Angeles Co. Museum and Sanibel Museum	News release	11
Zebra Mussel Watch Invoked in Florida	News Release	11

Warm wishes for the holidays
and the coming year!

HELENE AVELLANET

We learned from the Sarasota Shell Club's newsletter that our long-time member Helene Avellanet had passed away last June 7th at the age of 75. She had an active interest in shells since 1959; she was living in Teaneck, New Jersey when she joined the New York Shell Club, a membership she kept up the rest of her life.

In 1973-1974 Helene and her husband, Alphonse, retired to Nokomis, Florida, and became associated with the Sarasota Shell Club. She became active in the Florida club as she had been in New York; we remember that she took over many a tedious task (such as the typing of the roster).

We quote from the notice in the Sarasota Shell Club's newsletter:

"Helene was a hard worker for the club and was Treasurer for at least 5 years. Many remember her excellent exhibit of a shell color palette, which won the Most Beautiful Exhibit ribbons, and her outstanding collections and exhibits of Latiaxis and Harpa. Her children have donated some of her shells to the club for raffles, auction, and door prizes."

Many of Helene's shells are for sale. Call Vi Hertweck in Venice (813) 497-1501 for details.

MAE LACKNER

Mae Lackner's membership in the New York Shell Club began in May, 1959, when she and her young daughter, Janice, attended a meeting. It was not long before she was one of the group of volunteers who did odd chores for the Department of Invertebrates (chores which for the stalwart even included cleaning the "attic" and washing very smelly shells). Mae's talents found their place in cataloging, where her careful work was so appreciated that after a while she was given a salary for part-time work. Later, after some years with the Mollusks, she worked as a full-time secretary in Ornithology, where she remained until her retirement 10+ years ago.

We were sorry to learn of her death last July 23rd at 80 years of age. We offer condolences to her family.

She is remembered with affection.

HIGHLIGHTS OF THE JUNE MEETING

President Al Scarpetti opened the meeting by introducing new member Richard Herzog. Theta Lourbacos reported that income from the April auction was $2,620.33, of which $560 was donated to the William E. Old Malacology Fund.

Al introduced the annual election of officers by calling for nominations from the floor. There being none, Larry Potter, chairman of the nominating committee, reported that all incumbent officers had been asked if they would accept renomination, and all agreed. The slate presented, therefore, was: President, Al Scarpetti;

Vice President, Irv Hoppenwasser; Treasurer, Theta Lourbacos; Recording Secretary, Milton Werner; Corresponding Secretary, Rae Varga; Historian, Nick Katsaras; Directors: Fred Cannon, Walter Sage, Allen Aigen, Ed Cowles and Larry Potter; Editor, Dorothy Raeihle. The entire slate was re-elected by a show of hands.

Al called for an executive committee meeting on the subject of program, and the time chosen was the evening of June 19. He then suggested that we begin considering a trip to the Delaware Museum in the coming year, noting that it has mounted new exhibits. He also expressed thanks to the members who had helped with activities of the past year.

It was noted that the May, 1991 meeting would be held on the first Sunday of that month, because of Mothers' Day. Visitors Lauren Herzog and Elizabeth Free were introduced. The door prize, a _Cypraea_ _fuscorubra_, was won by Al.

Ed Cowles showed several slide photos of the moon, made through a telescope.

The speaker was Bob Janowsky, whose subject was the cowries of South Africa. He noted that he would not have been able to make this presentation ten years earlier because access to the shells of the area was so limited at that time. He added that in some places there the water is too rough for collecting. Many of the 115 to 120 species of the locality were known first by having been retrieved from the stomachs of the horsefish and the black mussel cracker. Bob accompanied his talk with shell photographs, and photographs of illustrations from "Cowries and Their Relatives of South Africa," a book by William R. Liltved. Many of these illustrations were from photos made by Mr. Liltved while SCUBA diving.

Milton Werner, Recording Secretary

1991 WINTER & SPRING SHELL SHOWS & EVENTS

By Donald Dan

A total of 13 shell events have been listed in the U.S.A. during the first six months of 1991, one less than we had last year. We welcome the return of the Broward (Ft. Lauderdale) show after a one year absence due to exhibition hall renovation. Also returning is the Palm Beach Shell Show. Due to problems in locating a suitable exhibition hall, the Ft. Myers show will continue to be absent in 1991.

The biennial Shellers' Jamboree held by the Sun Coast Conchologists will take place in 1991. Everyone seemed to have great fun at this event two years ago. The host club is already hard at work to repeat their tremendous success.

Jan. 18-20 Greater Miami Shell Show, N. Miami, FL
Gayle Motes
7305 N.W. 59th Street
Tanarac, FL 33321 (305) 726-5190

Feb. 1-3 Broward Shell Show, Pompano Beach, FL
Richard Sedlak
4371 SW 11th Street
Plantation, FL 33317 (305) 584-9283

Feb. 15-17 Sarasota Shell Show, Sarasota, FL
Dick Forbush
1104 Sklar Drive East
Venice, FL 34193 (813) 497-4312

Feb. 22-24 Naples Shell Show, Naples, FL
Naples Shell Club
P.O. Box 1991
Naples, FL 33939 Anna V. Szent-Kirallyi (813) 597-6115
Gloria Murphy (813) 649-7308

Feb. 22-24 St. Petersburg Shell Show, Treasure Island, FL
Bob & Betty Lipe
440 75th Avenue
St. Petersburg Beach, FL 33706 (813) 360-0586

Mar. 7-10 Sanibel Shell Fair, Sanibel, FL
Anne Joffe
1163 Kittiwake Circle
Sanibel, FL 33957 (813) 472-3151

Mar. 7-10 Palm Beach Shell Show, West Palm Beach, FL
John Spengler
614 West Bloxham Street
Lantana, FL 33462 (813) 586-4963

Mar. 14-16 Marco Island Shell Show XI, Marco Island, FL
Robert & Joan Scribner
1012 South Collier, #112
Marco Island, FL 33937 (813) 394-0399

Mar. 15-17 Treasure Coast Shell Show, Stuart, FL
Ted Jacaruso
1964 NW Pine Tree Way
Stuart, FL 34994 (407) 692-0270

Mar. 22-24 Central Florida Shell Show, Orlando, FL
Jake Dominey
700 Tam O'Shanter Drive
Orlando, FL 32803 (407) 894-3033

Apr. 5-7 Georgia Shell Show, Atlanta, GA
Kenneth White
2587 Ballew Court
Marietta, GA 30062 (404) 977-0858

May 25-26 Sun Coast Conchologists' Shellers' Jamboree
Clearwater, FL
Joan Pearson
11710 Parkview Lane
Seminole, FL 34642 (813) 397-7610
or Carolyn Petrikin (813) 796-4117

June 22-23 10eme Salon International du Coquillage
Dr. Ted Baer
CH-1602 La Croix
Switzerland (21) 393-771 or 207-371

June 30 - July 5 American Malacological Union and Western Society of Malacologists, Berkeley, California.

The 1991 joint annual meeting of the American Malacological Union and the Western Society of Malacologists will be held from Sunday, June 30 - Friday, July 5 at the University of California's Clark Kerr Campus Conference Center, Berkeley. Symposia will feature bivalves, molluscan biogeography, and molluscan taphonomy. Special added events will include a reception hosted by the Museum of Paleontology and open houses at UC Museum of Paleontology and the California Academy of Sciences. Field trips will range from the Bodega Marine Laboratory to wine tasting in the Napa Valley. Full announcements to follow. Presiding will be AMU president, Dr. Carole S. Hickman, Department of Paleontology, University of California, Berkeley, CA 94720.

(FESTIVUS XXII(11):118)

July 7/8-12 Conchologists of America will convene at the Huntington Hilton, Melville (Long Island), New York, which offers full facilities plus amenities and special rates ($95.00 single or double, $115.00 triple, $135 quad). By special arrangement USAir will provide anyone booking a roundtrip to Long Island's Islip/MacArthur Airport with a 40% discount on regular coach fare.

Early arrivals are invited, to take advantage of early registration Sunday afternoon, July 7, followed by an evening of relaxed social activities. Registration Monday morning will usher in a week filled with activities: slide shows, dealers' bourse, auctions, raffles, field trip(s) — excursions to Orient Beach State Park, the Pindar Vineyards, Sagamore Hill, Long Island Sound.

A new feature during the week will be one day devoted to "special concurrent sessions" which will allow information on a particular topic to be shared in a setting that will allow for individual participation. Bev Deynzer will coordinate these presentations.

Those wishing to give a presentation should write to COA President Hank Foglino, 4 Trent Court, Smithtown, NY11787. Those wishing to contribute items for the auction should send them to Sol Weiss, 2562 Ramona Street, East Meadow, NY 11554.

Walter E. Sage is the 1991 Convention Chairman. He writes: "Suggestions are welcome — contact me, P.O. Box 8105, Saddle Brook, NJ 07662. Phone 1-201-340-3437."

STATE SHELL FOR ALABAMA

As of April 19, 1990, the State of Alabama has a State Shell, the golden form of Scaphella junonia, Scaphella junonia johnstoneae Clench, 1953. The shell is known from the waters off the Alabama coast, and is named for the noted Alabama shell collector and author, Katherine Yerger Johnstone.

American Conchologist 18(2):16
(Ref. NOTES 312.4, 313.16.)

(The JUNONIA, publication of the Sanibel-Captiva Shell Club, carries in their issue of October 1990 the first of a series of columns on fossils, written by Dr. Emily Vokes, well known for her research in that field. Following is a reprint of the greater part of this first column. — Ed.)

COLLECTING FOSSILS —— WHY BOTHER?

. . A fossil is any remain or trace of former life. . .

Former life — that is the key. Life includes animals and plants, too. So let us not forget a large array of fossilized plant remains, ranging from the well-known petrified wood to leaf impressions, to amber (which is fossilized tree-sap) or coal. They tell us about the climate of a given area at a given time. Everyone has seen depictions of the great Pennsylvanian (that is a time) swamps that became the coal deposits of Pennsylvania (that is a place).

There is a tremendous interest in fossil algae. The first forms of life, long before trilobites, mollusks, or dinosaurs, were all algae. Lots of people spend a lot of time searching for these blobs in Pre-Cambrian rocks and trying to determine if the blobs truly represent life or if they are just some accidental mineral configuration.

But for the majority of us, collecting fossils means collecting something large enough to see with the unaided eye. And what can we see? Remember: any trace of former life. Although there are people who revel in their collection of trace fossils (these are called Ichno-fossils), for most of us real fossils comprise the "hard parts" of ancient animals.

Hard parts can be bones or teeth of vertebrate animals — everyone gets a thrill over finding a shark tooth — or the external covering of invertebrate animals. This includes carapaces or arthropods (a trilobite is just an ancient horseshoe crab), or the shells of mollusks. But it also includes the stony skeletons of corals or similar reef builders. Even sponges may occur as fossils on occasion (the beautiful Venus Basket "glass sponge" has a fossil representative 400 million years old). Animals like starfish, which are made of many separate calcareous plates held together by skin, can often be preserved, as witness the famous Mississippian crinoids. Jelly-fish? Yes, and 600 million year old ones at that — preserved as an impression in a sandstone deposit.

Any time you have a variety of objects, whatever they may be — stamps, coins, posters, beer cans, license plates — the magpie in all of us drives someone to collect them. In fossils we have an almost infinite variety of objects, many of which have a great deal of intrinsic beauty in addition to their other charms — how can anyone resist?

It is true that stamps or coins come in almost as many varieties, and from them we can learn much — geography, history, art — but they are inanimate and do not have the same appeal as a living object. Thus, many people collect seashells, or butterflies, or some other life forms. But to kill a living creature, just to place it in a display case, seems wasteful of the essence of life. One can concentrate on beach-shells rather than living ones, but these are usually somewhat battered and many of the most exotic species never appear on the beach.

For those of us who love the beauty of seashells but shrink from the wanton destruction of living animals, collecting fossil seashells is the obvious answer. They don't smell, no matter how long it takes 'til you get around to cleaning them. You don't have to get up at dawn to go collecting. There is an array of different forms to please the most avaricious collector. Some are rarer than others, hence they are more "valuable." When collecting, one is out in the fresh air and sunshine and, providing one uses good sense and a lot of sunscreen, it is a healthy outdoor occupation. I am never happier than when out walking through the woods, seeing the trees, the birds, the insects, the flowers, and generally "communing with nature." Call this looking for fossil localities and you can see why I, for one, love collecting fossils.

Once the fossils are collected one can simply stick them in a drawer and forget them, just like stamps in an album. But a greater sense of satisfaction comes from the analysis of where and how did this animal live. This we call paleoecology and it is the principal reason for studying fossils, regardless of what kind of animal or plant it once was. When one sees fossil corals in the Arctic, or fossil sharks in Ohio, we realize that the world is always changing. Studying these examples of former life can tell us an amazing amount about what the world was like at any point in time, at any place. And it is this intellectual challenge that provides the final reason for collecting fossils. It is not simply the accumulation of a bunch of objets d'art but the story they can tell that makes the collecting of fossils a never-ending source of pleasure.

(Dr. Emily H. Vokes is with the Department of Geology, Tulane University, New Orleans, Louisiana 70118. Detailed and well illustrated reports appear in their journal, Tulane Studies in Geology and Paleontology. — Ed.)

(The editor of JUNONIA adds a postscript to Dr. Vokes article: "Another good reason for fossiling in Florida is that there is no limitation of 'two specimens per species per day' - there's no limit except your own stamina, particularly when it's over 100 degrees 'in the pits'!")

EDDISON COLLECTION TO AMNH

Grace G. Eddison has donated her fine collection of worldwide shells, many of them self-collected, to the American Museum of Natural History. First section received, balance to arrive in a few weeks.

Dr. Eddison joined the New York Shell Club in 1962, when she lived in Riverdale. A haemotologist, she left New York in 1971 to take up permanent residence in Kentucky where she worked with a State Hospital.

She enjoyed travelling, and collecting. Her report, Shelling in Chile, with annotated checklist, appears in NOTES 101.6-8 and 102.6-8, April and May, 1964, and show her enthusiasm and careful recording.

PUBLICATIONS:

OF SEA AND SHORE

Tom Rice announces that he is resuming publication of his popular magazine, Of Sea and Shore, the first new issue No. 3 of Vol. 13 dated Fall 1990. A quarterly, subscription is $12.00 per year to United States addresses, bulk or surface mail. Photocopies of the earlier issues, published between 1970 and 1983, are available at $3.00 each. Up-to-date editions of his other publications are readily available and he is planning a new Directory of Conchologists. Write for details and a subscription blank to Tom Rice, Of Sea and Shore Publications, P.O. Box 219, Port Gamble, Washington 98364. Phone: (206) 297-2426.

SOWERBY REBORN

From the reign of King George III through that of Victoria, Edward and George V, English naturalists were blessed with a torrent of fine monographs and books on shells by three gentlemen, all by the name of George Brettingham Sowerby — father, son and grandson. Few lists of shells, whether from England, Florida, New Guinea or South Africa, do not bear "Sowerby" as author of a molluscan species.

When only twenty years old, G. B. Sowerby Junior, as the son was known, embarked upon his beautifully hand-colored Conchological Illustrations which appeared at a snail's pace from 1832 to 1841. The craze for shells began to sweep England, and by the time Queen Victoria had ascended to the throne, herself only 18, Sowerby was inspired to write his popular Conchological Manual that launched the English speaking world into the hobby and science of conchology. A fourth and extensively revised edition with over 500 hand-painted illustrations was issued in 1852 and became a guiding reference for several generations throughout the British Commonwealth and the United States.

The introduction, laced with 98 fine black-and-white woodcuts, is as informative as the texts of some modern-day popular books. Over 4,000 conchological terms and genera are described and arranged alphabetically. Junior was also a prodigious artist. The 29 plates carried 600 of his carefully painted shells. After his death in 1884, he was described as a "shocking latinist [as perhaps most of us are today] but an excellent draughtsman." Today, copies of his manual are hard to find, but a recent catalog of a London second-hand book dealer lists one for the equivalent of U.S. $201.00.

By good fortune, and perhaps by accident, Sowerby's Conchological Manual has been faithfully and beautifully reproduced by the British firm, Studio Editions Ltd. of London. To it they have added a dozen hand-colored plates of seashells from the 1849 Parisian Dictionnaire Universel d'Histoire Naturelle by d'Orbigny. The French drawings are by Jean Gabriel Pretre, a highly talented artist who specialized in the very difficult art of shell portraiture. They make an attractive supplement to the hand-colored lithographs of G. B. Sowerby Junior and allow us to compare French and English styles of conchological illustrations.

In his 1990 Preface to this remarkable reproduction, S. Peter Dance, England's leading popular conchologist, says that "no useful purpose would be served by trying to make the original text conform with modern linguistic and scientific requirements." Nonetheless, conchologists will have many hours of nostalgic pleasure in reading this 1852 Victorian classic. The new hardback book is 139 pages, a large 10 x 11 inches and with 41 color plates. Most remarkable is the low price of $14.95, plus #3.05 for packing and shipping from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803.

Sowerby's London coffee house contemporaries, like Charles Dickens, Joseph Conrad and Robert Louis Stevenson, have been immortalized by hundreds of reprints of their works. It will be comforting to shell lovers to know that George Brettingham Sowerby Junior has been born anew.

R. T. Abbott, 1990.

SOWERBY'S BOOK ON SHELLS

A 1990 re-issue of the 1852 fourth edition of A Conchological Manual by G. B. Sowerby II. Crescent Books, New York. 10+ x 11+, 139 pp., 40 color plates, color frontispiece, dust jacket, end papers, hardcover. $15.00.

This large-format volume is a beautiful and faithful reproduction of the text and plates of the fourth and last edition of this historical volume on conchology, first published in 1839. The 28 Sowerby plates have been enlarged in this 1990 volume, but there is no loss of quality from the original work. The addition of 12 plates from d'Orbigny's Dictionnaire Universel d'Histoire Naturelle (1839-1849) will allow students to compare the British and French styles of illustration. One should note here that d'Orbigny's plates are oriented with the apertures of the gastropod shells upward, while Sowerby's plates show aperture downward, the orientation we are generally accustomed to. All the plates are crisply executed and will allow easy and accurate recognition of species pictured.

The Sowerby text, here unaltered from the original, was written to introduce conchologists of the 1850^s to the study of mollusks. Conchologists of the 1990^s will benefit from a careful reading of this text and it will prove a most interesting study to note the advances in our science that have been made over the last 140 years. Most of the basic data of this book remain valid today, and this reviewer believes that we can all enjoy and learn from reading this book.

Noted conchologist S. Peter Dance has written an informative foreword to this 1990 edition — a worthy complement to the original preface and introduction here reprinted. This volume is a pleasant addition to the currently available literature on mollusks, and the $15.00 list price is surely one of the great bargains of 1990 and is highly recommended.

Walter E. Sage

WAGNER & ABBOTT'S WORLD SIZE RECORDS 1990

Supplement 4, Standard Catalog of Shells, by Robert J. L. Wagner and R. Tucker Abbott. American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. 80 pp., $9.00 postage paid.

This 1990 listing of world size record shells continues the editors' tradition of compiling information provided by collectors on the largest known specimen of various mollusks. 2,318 species and subspecies are covered in the current listing, nearly double the taxa recorded in the 1985 edition. The format has larger and easier to read type and is organized with genus names in bold type, with species and subspecies arranged alphabetically under each genus. Additional data provided are size (in centimeters), owner, locality, and date collected or registered. This booklet, hole-punched to be added to the Standard Catalog binder, contains an introduction and 76 pages of size records, followed by a 4-page alphabetical index to owners. This feature allows the reader to tell at a glance who owns the most records and which of one's friends is fortunate enough to possess a world record size shell.

The introduction by the editors provides all details necessary for understanding both the format of the listing and the process by which new records can be verified. It is important to note here that the senior editor has a new address: Robert J. L. Wagner, 2114 James Buchanan Drive, Elizabethtown, Pennsylvania 17022-3101.

This edition contains very few misspellings, and it is hoped that these will be corrected in the next edition. One error, on page 80-059, should be changed now: the species mirabilis, listed under Teramachia, properly belongs to the genus Iredalina, also of the family Volutidae.

There is one continuing difficulty that can only be remedied with the cooperation of the owners of world size record specimens. To ensure the accuracy and timeliness of records listed in future editions, owners are requested to notify the senior editor when disposing of any world size record shell. To illustrate this point, this reviewer can document the presence of 35 additional record size specimens in the American Museum collection — all of these shells have been donated since publication of the 1985 edition.

This is an interesting publication and will be fun reading for the collector. It should encourage avid shellers to document any world record specimens they may have, and thus add additional names to the list of owners of world record size shells.

Walter E. Sage

SEASHELLS (of the Northern Hemisphere)

R. Tucker Abbott announces that this guide will be available soon: A pocket-sized, 1990, full-color field guide with 470 color illustrations of cold water species from Alaska to Oregon; Labrador to Maryland; and Norway to Portugal. Part of Gallery Books' new American Nature Guides, 4 3/4 x 7 1/2" in a practical design with spiral binding and weatherproof plastic casing. 180 pp., 470 shells in color.

Price: $9.98 from American Malacologists, P.O. Box 1192, Burlington, Massachusetts 01803. Phone (508) 371-2234.

Announcement
American Malacologists

LIVING TEREBRAS OF THE WORLD

by Bratcher and Cernohorsky, the most recent and complete book on these marine auger shells, is now available at a new very affordable price. Twila Bratcher, in conjunction with the publishers, has donated the main stock of her book to two museums specializing in mollusks. The entire proceeds will go towards further education and research on mollusks. Those conchologists east of the Mississippi and Europe may find it more convenient to order from the Bailey-Matthews Museum, P.O. Box 1580, Sanibel Island, Florida 33957, while those in the West and along the Pacific Rim may order from the Department of Mollusks, Los Angeles County Museum of Natural History, 900 Exposition Boulevard, Los Angeles, California 90007. The price in either case is $27.00 (postage free), half of the publisher's original listing.

The 265-page, hardbound book, with 73 plates illustrates and describes all the known species in the family Terebridae. Many reviewers have said, "The work is most successful as an up-to-date monograph — the first in a century to treat the whole family — describing the 267 extant species and clarifying their often subtle distinguishing features." Many holotype specimens are figured, and a glossary and full index are included.

News release 11/18/90

ZEBRA MUSSEL WATCH INVOKED IN FLORIDA

Because of an unparalleled invasion of European freshwater Zebra Mussels (Dreissena polymorpha) in the Great Lakes and an estimated cost ranging from $4 to $8 billion to control the new pests, Florida experts on mollusks are taking steps to meet the challenge.

A Zebra Mussel Watch has been set up at the new Bailey-Matthews Shell Museum on Sanibel Island, where malacologist Dr. R. Tucker Abbott will oversee correct identifications and the latest exchange of information.

Alarming reports relate that the inch-long, zebra-striped, prolific mussels have caused a partial shutdown of Detroit's Edison power plant, forced a Michigan hospital to dismiss patients and cancel elective surgery, shut down the water supply to Monroe, Michigan for two days, threatened boaters on Lake Erie by sinking navigational markers, and will invade hundreds of water systems over most of the United States in the next few years. (See: Sports Afield for October 15, 1990, pp. 88-90, 95.)

How far south will the pernicious bivalve spread, and when and where will it invade Florida are questions the malacologists will try to answer. The key to a successful watch is the correct identification of the invader, since two harmless, native, brackish water species and several marine mussels can be easily mistaken for the rogue mussel. Shellers should not confuse the European immigrant, Dreissena polymorpha, with the native Mytilopsis nor with the marine Zebra Mussel, Arca zebra. nor the common Hooked Mussel, Ischadium recurvum.

Dr. Abbott says that boaters from the north will probably unwittingly introduce the Zebra Mussel soon to Lake Okeechobee and other

Florida and Georgia freshwater bodies sometime in 1991 or 1992. The mussels cling to hulls in droves and can live our of water for many days. Florida State has yet to instigate an inspection of small boats being towed across its northern borders. Gravid females release free-swimming larvae which invade pipes and, as adults, clog them within a few months.

If in doubt about what you discover among strange new freshwater mussels that cling to boats and pilings in Florida, a free identification service is offered by the new Shell Museum center on Sanibel. Samples, either dried or pre-soaked in alcohol, may be mailed to The Bailey-Matthews Shell Museum Center, 2431 Periwinkle Way, Sanibel, Florida 33957. Be sure to include data as to place and time. The Hotline phone for the Zebra Mussel is (407) 725-2260.

If some modest funds are supplied, Dr. Abbott will be able to prepare a free Illustrated guide for positive identification and suggested controls. Already over 300 scientific references and research papers have been published on the subject, mainly by Russian, Polish and German limnologists who have also been plagued by this expensive scourge. A central national information Newsletter is issued by the Wisconsin Sea Grant Advisory Services, 1800 University Avenue, Madison, Wisconsin 53705. Phone: (608) 262-0645.

[Local note: The Zebra Mussels are in New York's Erie Canal, which is linked to the Hudson River. Dr. David Strayer, a mussel specialist at the Institute of Ecosystem Studies in Millbrook, New York, expects the mussel to establish itself in the Hudson by 1992 (and) the proximity of the Hudson to the New York City reservoir system and its 6,000 miles of century-old and largely buried pipeline puts that city's system at risk.

Reported by R. H. Boyle, Sports Illus., 10/15/90]

Dr. Abbott has followed molluscan invasions for years. He was sent to East Africa in 1947 by the National Academy of Sciences to investigate the spread of the Giant African Snail (Achatina fulica), and again in 1978 was called to California to help solve the invasion of the Oriental Freshwater Corbicula Clam which now fills our Florida streams and lakes. Dr. Abbott's Master Thesis was on the disease-carrying Thiara snails that arrived in Florida Springs from the Philippines in 1949.

Earliest of the molluscan invaders to America were the marine periwinkle, Littorina littorea, in the early 1800's, and the coming with the pilgrims of the English Garden Snail, Cepaea nemoralis, to Massachusetts. Years later, in the summer of 1898, many residents of Chicago turned on their kitchen faucets for a cool drink and were startled when out popped hundreds of pea-sized snails. At the city pumping station millions of the freshwater snails, Bulimus tentaculatus, clogged wells and screens, and periodically they had to be shoveled out and carried away by the wagon load. These "faucet snails", originating in Europe, subsequently spread over the eastern third of the United States. Latest of molluscan invaders was a small, smooth marine mussel, Mytella, probably from Venezuela, that plagued the city fathers of Jacksonville, Florida, for a short while in 1988.

News Release, Sanibel 11/17/90

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1990 - 1991

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, at the American Museum of Natural History at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May at the Museum. The Museum is at Central Park West and 79 Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

1990	Sept. 9	Rm. 419	1991	Feb. 10	Rm. 319
	Oct. 14	Rm. 419		Mar. 10	Rm. 319
	Nov. 11	Rm. 419		Apr. 14	
	Dec. 9	Rm. 319		May 5	Rm. 323
1991	Jan. 13	Rm. 319		June 9	Rm. 319

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day. (Note the different meeting room.)

On meeting days, our meeting room will be open at 1:30 P.M. for informal conversation and discussion.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History (unless advised). Present your membership card for admission to the Museum for the meetings.

PROGRAMS

SUNDAY, MARCH 10, 1991, at 2:00 p.m.: Rm. 319 American Museum

SHELLING ON THE BIG ISLAND OF HAWAII
presented by Richard Kelly

APRIL 14, 1991 - ANNUAL NEW YORK SHELL CLUB AUCTION/SOCIAL

This will be held, as in past years, at Dorothy Jensen's Dance Studio in Astoria, Queens. The detailed announcement will be mailed to members about the end of March, and will include travel instructions as well as information about time, place, bargain table, door prizes, refreshment table, et cetera.

MAY 5, 1991 - TO BE ANNOUNCED

Please note this is the first Sunday in May, and the meeting will be in Rm. 323.

CONTENTS

		Page
Highlights of Recent Meetings	Milton Werner	2
Another License, Another Fee	(Long Island news)	4
Coming Events (additional to NOTES 317)		5, 11
Zebra Mussel Scare on Hudson River	Water Ways	5
Congeria/Mytilopsis in Hudson River	M. K. Jacobson	6
PUBLICATIONS:		
Seashells (Northern Hemisphere) by Abbott	Review by W. Sage	7
Recommended reading (articles)		7
NOTES and NEWS		8
New dating process for fossils; NOAA proposes largest marine sanctuary; Dr. Rudiger Bieler at Field Museum; AMNH Dinosaurs dislodged along with NYSC; ALS field trip opportunities.		
The Red-Gilled Nudibranch of the Old Sow	Robert Leahy	9
Soviet Lake Offers Look at Evolution	J. N. Wilford	10
Where is the Frontier of Science?	Larry L. Booda	11
Letter from Martinique (from Kurt Grosch)	Codman Hislop	12
OBITUARIES		
Alice Denison Barlow	Walter E. Sage	14
Jane Arrowsmith Zager		14

Omitted from CONTENTS of NOTES No: 317:

State Shell for Alabama	Amer. Conch.	5

HIGHLIGHTS OF RECENT MEETINGS

SEPTEMBER 9, 1990 President Al Scarpetti thanked Corresponding Secretary Rae Varga for her efforts, by mail and telephone, that assembled an excellent list of speakers for the next several months. Al also reported on his talks with Jon Greenlaw, president of the Long Island Shell Club, about a joint field trip to the Delaware Museum of Natural History. It is expected that details will be completed and announced soon.

Historian Nick Katsaras read a description of how the Club came to be formed, written by one of the founders, Dr. Walter H. Jacobs. This bit of history was printed in New York Shell Club Notes No. 28, January 1957 and includes lists of those who attended the Club's first two meetings, in January and February, 1949. It was noted that the Register of American Malacologists lists Dr. Jacobs as being deceased. Dr. Jacobs, who was present at the meeting, admits to being almost 87, but denies having expired. Nick also displayed a collection of photographs of conchological personalities, most of them members or former members.

Al announced that the speaker at the October meeting would be Dr. Neil Landman, who will describe his recent work with Nautilus. The November speaker will be Mel Springer, of both Long Island and New York Shell Clubs, who will talk on his June trip to Bali. Al added that he had received a letter from Richard Goldberg, who has recovered from recent surgery, and who expressed interest in presenting a program in December.

Dr. Jacobs read an article from Forbes Magazine on a Camden, Tennessee company that sells $16 million worth of Unionidae shells a year to Japan's cultured pearl industry.

Walter Sage briefly mentioned last July's convention in Melbourne, Florida of the Conchologists of America. He made copies of the program and lists of auction shells available, and displayed samples of the spectacular T-shirts designed by Sue Stephens of Sanibel. The Long Island Shell Club will host COA's 1991 convention, July 7-12.

The door prizes were Ancilla albocallosa, won by Phyllis Martignoni, Conus ermineus, won by Howard Israel, and Cymbium olla, won by Eugene Himmelstein.

The speaker was Russell Jensen, whose subject was Humor in Malacology. Retired after his many years as Assistant Curator of Mollusks at the Delaware Museum of Natural History, Russ devotes considerable time to collecting and photographing humorous cartoons dealing with shells and mollusks. His collection is approaching 400 items, of which he showed 140 on the screen. His audience laughed at all of them, and even applauded some.

Milton Werner, Recording Sec'y
from notes made by Walter Sage

OCTOBER 14, 1990 It was announced that a letter from the American Museum informs us that Room 419 will not be available for meetings after December 1st, and that our meetings in December and through 1991 will be held in Room 319.

The door prizes were a Murex haustellum, won by Doreen Pokoyk, a Turbo petholatus, won by Phyllis Martignoni, and a Voluta rutela, won by visitor Roy Kremberg.

Vice President Irving Hoppenwasser introduced the speaker for the day, Dr. Neil Landman, Associate Curator in the Department of Invertebrates, whose subject was his continuing study of the genus Nautilus. He described a trip to Palau, or Belau, to collect and study live specimens of N. balauensis. The traps, baited with chicken, were set at 1,500 feet and deeper, and left for two days. The specimens brought up were kept in tubs of sea water, iced to approximate the temperature at the collecting depths. Dr. Landman's recent work has been an inquiry into the relationship between Nautilus and the long-extinct ammonites. There were thousands of species of each, around the world, and they were, at least for a time, contemporaries. The largest ammonite fossils measure almost three feet across. The study covers the differences between the Nautilus and ammonites — an obvious one is in the shapes of the septa. In the ammonites it is not the familiar smooth curve, but convoluted like a gathered drape on a multicurved rod. The strength of this shape may have been necessary to withstand the water pressure at great depths.

Milton Werner, Recording Sec'y.

NOVEMBER 11, 1990 President Al Scarpetti drew attention to a letter that has been sent to shellers, over the signatures of Robert Benevides and actor Raymond Burr, soliciting contributions to the fund with which to build the proposed Bailey-Matthews Shell Museum on Sanibel Island.

Al reported on his conversation with Jon Greenlaw, president of the Long Island Shell Club, on the planning of a joint trip to the Delaware Museum of Natural History. It was decided to try for a date in early spring. They also felt that the type of transportation can't be decided until it is learned what the approximate attendance will be.

Al mentioned the April auction/social, with the reminder that volunteers will be needed.

The door prizes were Conus dalli, won by Sylvia Springer, Amoria damoni, won by Pauline Czepullkowski, and Bursa bubo, won by Rae Varga.

The program for the day was presented by Sylvia and Mel Springer, of both the Long Island and New York Shell Clubs. They described their trip, from mid-June to mid-July, to Indonesia, touching on such romantic spots as Bali and Lombok. Their extensive slide-photo coverage, with comment, covered a great variety of scenes and local people, and some of the 500 species of shells they collected. Mel offered an excellent suggestion to any planning a trip of this kind: Well before starting out, find someone who speaks the language that will be encountered, and develop some familiarity with it.

Milton Werner, Recording Sec'y

DECEMBER 9, 1990 President Al Scarpetti mentioned the need for volunteers to prepare for the April auction/social meeting. Also, he is investigating the possibility of chartering a bus for the proposed trip to the Delaware Museum of Natural History, and will report on his findings at the next meeting.

He announced that Florence Fearington, a collector of rare books, has reported that she is in the process of photographing some of them. When the job is completed Al will then schedule her to do a presentation on shell books. He also announced that Nick Katsaras will present a program on Conus at the January meeting and that the February program will consist of members talking on shells that particularly interest them. Larry Potter suggested that we invite a Long Island Shell Club member to offer a preview of the 1991 Conchologists of America convention at the March meeting.

Nick read a clipping describing a beach clean-up effort in California, in which 10,000 volunteers cleared 200,000 pounds of trash from 40% of the state's coastline.

The speaker was Richard Goldberg, whose subject was "Land Shells Under the Lens." The lens, he explained, was the extreme close-up camera lens, since the species he would show on the screen and describe are less than an inch in size, with some nearly microscopically tiny. All were from his own collection.

He had arranged his slides in groups, in order to offer comparisons of shape, lip formation, sculpture, apertural intricacies, etc. The geographic origins of his subjects was truly world-wide. Another group was of micro-shells from the family Clausiliidae. The last group consisted of Richard's favorite terrestrials, not all small. He noted that 60% of land shell species are 5 mm or smaller in size.

Many of the body shapes, textures and sculpturing he showed would be remarkable in sizes that could be seen by the naked eye. As features of shells that are themselves so small as to need magnification, they are amazing — and, as might be expected of shell characters, beautiful.

Milton Werner, Recording Sec'y.

ANOTHER LICENSE, ANOTHER FEE

Successfully fought last year, Governor Cuomo is again proposing a marine recreational fishing license, seeking revenue from this one small area of the state that is bordered by salt water, the monies possibly to go into a fund within the DEC budget.

Any comments should be sent to State Assemblyman Joseph Sawicki, Jr. 107 Roanoke Avenue, Riverhead, New York 11901.

From the editorial page, Suffolk Life Newspapers of
February 13, 1991, p. 5. David J. Willmott, Editor.
P.O. Box 167 Willmott Plaza Rt. 58, Riverhead NY 11901.

Residents of Long Island should be reminded that the term "fish" includes shellfish (see NYSC NOTES 314.5).

COMING EVENTS

Additions to the listing in NOTES 317.3,4

March 13 The American Littoral Society's 26th annual Wednesday evening film and slide presentation at the American Museum of Natural History. This year: Giant Squid and other fantasies.

JUNE 30 - JULY 5 AMU/WSM at Berkely (See NOTES 317.4,5). For further information, write to Paul Scott, Department of Invertebrate Zoology, Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road, Santa Barbara, CA 93105, or call (805) 682-4711.

FESTIVUS 23(1):10

~~JULY~~.... MAY 18-19 The Boston Malacological Club is planning an exhibit of shells and art, to be held at the Cape Cod Museum of Natural History in Brewster, Massachusetts. "This is our first exhibit in almost a decade, the last one being held in 1981 at the New England Aquarium.

"Unlike the 1981 exhibit, this event will not be competitive, and the display time will likely be longer - final dates and arrangements will be forwarded to you. Our target month for the exhibit is July, 1991."

For information, contact the chairman of the show committee, Mr. Michael LaFosse, 170 Margin Street, Haverhill, Massachusetts 01832. Telephone: (508) 373-5645 after 7:00 pm.

From: Call for Exhibits in THE
EPITONIUM, Newsletter of the
Boston Malacological Club, Inc.

ZEBRA MUSSEL SCARE ON HUDSON RIVER

On November 28, 1990, New York Sea Grant's Zebra Mussel Clearinghouse went nationwide announcing the first confirmed North America sighting of Zebra Mussels outside the Great Lakes [Aquatic Pest Turns Up Early in Hudson (New York Times of November 29, pp B4,8)]. A Hudson River Valley museum director had collected wood carrying mussels on Croton Point and put them in an aquarium where they flourished for several weeks before someone noticed odd little stripes. The mussels were sent to the Sea Grant office in Lockport, New York for identification.

Local officials were profoundly alarmed. Since their introduction into the United States from Europe in 1986, Zebra Mussels have brought serious problems to the Great Lakes region. ... The species multiplies so rapidly in such dense colonies that they clog intake pipes, invade power plants, cripple municipal water supplies, damage boat engines, cover beaches with razor-sharp shells and destroy other species by destroying the plankton at the base of the food chain.

Experts were most alarmed to learn that the so-called Zebra Mussels were thriving in water with a salt content as high as 9 parts per thousand. Normally, Zebra Mussels couldn't survive more than 3.75 parts per thousand. John Kahabka of New York Power Authority gloomily told WATER WAYS, "We're re-writing the text books." The Power Authority immediately sent divers down to the intake valves of their Indian Point Nuclear Power Plants II and III to check for colonies, but found nothing.

A week later, the Sea Grant Zebra Mussel Clearinghouse announced it had made a mistake: the look-alike mussel was a salt-tolerant cousin named Mytilopsis leucophaeata. The two were so alike that it took dissection in a lab to verify the difference.

The Power Authority responded with relief but like many other major industries dependent on fresh water for industrial purposes, they are continuing research for control methods. ...

On December 10, Charles O'Neill and David MacNeill, the Sea Grant scientists who had made and withdrawn the announcement, told a Zebra Mussel Conference at West Point that the Hudson River Valley could breathe a sigh of relief — but only for a moment. ... *

"This situation has prompted us to initiate development of an identification key for scientists, officials, water and power plant personnel and others to help differentiate between the two species," said O'Neill. "This key is necessary because the research literature indicates that the two species may have some overlapping salinity tolerances, which means they could be found growing together in certain brackish estuaries."

In spite of this false alarm, researchers believe that it is only a matter of time before Zebra Mussels are found in the Hudson River and other inland waters. **

*From WATER WAYS, New York's Waterfront News, 2(5):4, Jan.-Feb. 1991
Contributed by Jack Foehrenbach.

**From COASTLINES 20(2):2,6, Fsll/ Winter 1990-1991.

Mytilopsis leucophaeata (Conrad, 1831) was long known as Congeria leucophaeata and is so listed in Jacobson and Emerson's SHELLS OF THE NEW YORK CITY AREA, Argonaut Books, 1961/ SHELLS FROM CAPE COD TO CAPE MAY, Dover Publications, 1971. We reprint the text from page 83 of both editions:

CONGERIA LEUCOPHAEATA Conrad Brackish-water Mussel

Size: 1/2 inch long, 1/4 inch wide.

Description: The shell looks like a small Mytilus. it is inflated, elongate triangular, bluish white to tan in color, covered by a grayish brown periostracum that is roughened by concentric, slightly raised ridges. There is a white septum in the interior near the pointed beaks.

This shell was long thought to range no further north than Chesapeake Bay. However, we found a huge colony at Croton Point State Park, on the Hudson River, living attached to submerged buoys, logs and diving floats. We also found specimens all along both banks of the Hudson, from just south of the Bear Mountain Bridge down to Dyckman Street in upper Manhattan.

A footnote in the 1971 edition: "Congeria leucophaeata was reported at Haverstraw, New York, in 1953."

You will find a color photograph of the species in COMPENDIUM OF SEASHELLS, Abbott and Dance, 1982, where it is called "Conrad's False Mussel," size .7", and with the range of New York to eastern Mexico in brackish water and common. The photograph (page 369) shows one shell of brown, and two shells with tan background and brown elongated splotches. It is of the Dreissenidae, thus can be called a "cousin" of the Zebra Mussel, Dreissena polymorpha.

REVIEW:

SEASHELLS (of the Northern Hemisphere)

By R. Tucker Abbott, 1990. American Nature Guides, Gallery Books, New York. 176 pp., 4 3/4" x 7 1/2", color illustrations. $9.98.

This compact field guide provides concise coverage of approximately 370 of the most frequently encountered shelled marine mollusks of the temperate regions of the Atlantic and northeastern Pacific Oceans. A brief introduction covers such topics as how and where mollusks live, collecting shells, and the Phylum Mollusca. A map defines the areas included — Alaska to Oregon, Labrador to Virginia, Scandinavia to Portugal.

Gastropods, scaphopods, chitons, and bivalves are treated, with a few words of diagnosis introducing each family or major group. There is a short paragraph of description for each species, including common and scientific names with author and year of description, and size in inches and centimeters. The photographs accompanying species accounts are crisp and good examples for identification purposes.

A glossary of terms precedes species descriptions and illustrations, which are followed by acknowledgements, a bibliography organized by region and specific groups, and an index to generic and common names. The spiral binding, waterproof plastic cover, and size, should facilitate use of this book. Collectors will be pleased to find in this volume many temperate species seldom illustrated elsewhere. A larger European edition is also expected to be issued. Dr. Abbott can be congratulated for providing a welcome, useful book so moderately priced.

Walter E. Sage

RECOMMENDED READING:

AN OCTOPUS'S GARDEN, by Richard B. Aronson of the Smithsonian. Natural History Magazine for February 1991, pages 30-37. Octopus briareus, Ophiothrix oerstedi. Sweetings Pond, Eleuthera.

THE SEA BEYOND THE OUTBACK, by Rodney Fox. National Geographic January 1991, pages 44-73. Adventures cruising and diving off NW coast of Australia. Photographs by David Doubilet include rare shot of coral spawning, but no mollusks.

ALGAE FROM ANTIQUITY, by Donald W. Fisher, NYS paleontologist, Ret. The Petrified Gardens (Late Cambrian) in Sarasota Springs, New York. NYS Conservationist for January-February 1991, pages 42-47.

NOTES AND NEWS

JULY 1990. Carbon-14 Dating Process Flawed: In research on cores of ancient coral reefs off Barbados the age of fossil corals was determined by a new, highly reliable method called thorium-uranium dating and found that ages were consistently older than carbon-14 readings of the same material. The divergence began in specimens older than 8,000 years and increased with the samples' ages to as much as 3,500 years in older specimens.

From a report by Lamont-Doherty
Geological Observatory, quoted
in Sea Technology 31(7):55.

SEPTEMBER 1990. NOAA Proposes Largest Marine Sanctuary Yet: A 2,99-square-mile area in California's Monterey Bay to be designated the ninth U.S. marine sanctuary. The region is considered by biologists to be located in one of the most unusual and highly productive areas in the country; it is inhabited by a wide variety of marine mammals, fish, sea birds, and sea otters (plus the mollusks and varied flora — Ed.).

The proposition is opposed by the National Ocean Industries Assoc.

Sea Technology 31(9):83.

SEPTEMBER 1990. The position held by the late Alan Solem at the Field Museum in Chicago has been filled by Dr. Rudiger Bieler, recently of the Delaware Museum of Natural History.

Walter E. Sage

NOVEMBER 1990. Dinosaur Displays Closing for Renovation. The American Museum of Natural History, which houses the largest collection of fossils in the world, has begun closing down its immensely popular dinosaur exhibits as it initiates a five-year renovation project, the institutions most ambitious such remodeling since it was founded in 1869. The Hall of Early Dinosaurs has already been partly closed, and in February it will close completely for two years. (The work involved necessitates the use of Room 419 — hence our move to the floor below. — Ed.)

NY TIMES

FOR 1991. The American Littoral Society's schedule includes some out-of-the ordinary trips trips that require immediate response if they are to happen:

Cayman Brac Dive/Study, June 15-22. $1,125. Write for details.

Iceland Expedition, June 17-26. $2,475 from New York. Phone for full details. (201) 291-0055.

Galapagos Exploration, June 20-29. $2,950 from Miami. Led by Mickey Cohen. Brochure available.

The Pacific Northwest, July 10-21. $895 from Seattle. Write for details.

Annual dues of the American Littoral Society are modest at $20. To join, write to the Society at Sandy Hook, Highlands, New Jersey 07732.

THE RED GILLED NUDIBRANCH OF THE OLD SOW

by Robert Leahy

Fundy and Passamaquoddy Bays are vast cold backwaters of the North Atlantic and support an unusual variety of marine animals. Fin back whales, dolphins, seals, and macro creatures like corals, hydroids, sea slugs, and spectacularly colored nudibranchs live in these bays of northern Maine and New Brunswick, Canada. The red gilled nudibranch, Coryphella verrucosa, an unusually colorful mollusk, appears in great numbers on the rim of Old Sow, the second largest whirlpool in the world.

Along Fundy's western shoreline are several island communities known as the Quoddy Loop. The area features rugged coasts that include deep water coves, inlets, bays, and three islands (Moose, Deer, and Campobello) which collectively border Old Sow.

The deep waters of the Fundy Bay mix with the St. Croix River effluent during tidal changes and create the whirlpool which is the size of several football fields. The 28 to 30 foot tides in the area create currents that exceed eight knots during mid-tide.

The inhabitants of this underwater wilderness have not been photographed extensively, primarily because of the cold water (average temperature is 48 degrees F.) and the false assumptions that the marine life here is not as colorful as in the warmer latitudes, nor is the water as clear.

Old Sow drops to over 450 feet but the underwater rim of this turbulent whirlpool appears to attract much of the beautiful and prolific marine life which can be photographed during slack tide in this "North Atlantic Caribbean." Its near vertical walls help provide a rich biosphere which has created an exceptional environment for growth and reproduction of the red gilled nudibranch. Although their habitat extends from the Arctic to New York, the Moose Island-USA/Deer Island, Canada location appears to have a wealth of the essential requirements to promote their proliferation. Consequently there are unique photographic opportunities to capture these animals reproducing, feeding, and attacking prey.

The red gilled nudibranch is a member of the sea slug family — class Gastropoda, phylum Mollusca. These gastropods don't have true gills, but breathe through their skin or projections on the dorsal surface. They vary in size, shape and color and are of two types: the oval dorids, which have gills on their backs, one pair of tentacles and feed on sponges and bryozoa, and the aeolids, which have cerata or fleshy protuberances from the main body which are not gills, and two pairs of tentacles. Gastropods are small animals. The adults rarely exceed two inches in length and a half inch in width. They are translucent white, with an opaque white strip down the middle of the back and a tapered tail.

The red gilled nudibranch is a member of the aeolid group which feeds on hydroids and anemones. This shell-less mollusk appears defenseless but, like most aeolids, utilizes ingested nematocysts (stinging cells) of its hydroid prey to defend itself from predators.

Up to 100 long finger-like extensions protrude in rows on each side of its back. These finger-like projections have a bright red (occasionally brown) core and an opaque white ring near the tips.

These extensions are not gills but extensions of the nudibranch's gut. The ingested nematocysts are directed to the gut extensions and become a part of its defense. The head has two pairs of long antennae, and the front end of the foot has a sharp hook-like extension on each side.

These animals are found mostly among seaweed and hydroids, their favorite dining entrees. Reproduction takes place at any depth; however most egg ribbons I observed and photographed were in 60 feet of water (at high tide) or deeper. The red gilled nudibranch spins a spiral egg casing containing hundreds of tiny embryos. The developmental period is one to two weeks (depending on water temperature). Few predators have been identified that seek out and feed on these eggs. Larvae are free swimming and have small shells. The young resemble adults and have large secretory glands which may provide a defense similar to the distastefulness of butterflies. Their color acts as a warning to shallow water fish that this morsel does not taste good; thus increasing their safety on the rim of Old Sow. Winter flounder and cod appear to be the chief predators of this colorful aeolid.

Although prevalent along the entire coast of Maine, the red gilled nudibranch as well as the northern red telia sea anemones appear in larger numbers adjacent to the rim and in the bore of Old Sow. The rich biosphere including 'fields' of hydroids created by the Fundy tidal flow promotes astonishing growth and reproduction for this and many benthic animals of the area. I also observed a low diversity of predators in this region. This combined with the fact that nudibranchs are brightly colored and conspicuous during the day and may have a noxious defense to compliment the ingested nematocysts, contributes to the large populations.

There are 32 species of nudibranchs in the southern Gulf of Maine. Of these, 13 have somewhat similar color patterns of reddish ceratal digestive diverticula with white tips. The similarity may influence the estimate of their numbers and suggests a more systematic study of this colorful aeolid.

> [Robert Leahy is director of Temple University's Center for Underwater Research and Education. His beautiful color photograph (enlarged) of Coryphella verrucosa graces the covers of the Underwater Naturalist of October, 1990 (Volume 19, No. 3.), Bulletin of the American Littoral Society. His article, reprint-above, appears on pages 7 and 8 of that issue. Abbott (American Seashells, 1974) gives the size of Coryphella verrucosa as one inch in length.]

SOVIET LAKE OFFERS LOOK AT EVOLUTION

Scientists probing the depths of Lake Baikal in the Soviet Union have discovered heat escaping from cracks in the lake bottom to support rich communities of exotic life, much like those around hydrothermal vents in the midocean ridges. It is the first time such a phenomenon has been found in fresh water. ...

The hot vents of Baikal were observed this summer by a Soviet-American expedition which first detected the phenomenon by remote sensing devices and then dispatched people in a research submarine to get the first detailed photographs of sponges, bacterial clusters, worms, snails and fish thriving there. Biologists have only begun to analyze the pictures, but they say they would not be surprised to find that many of the animals are entirely new to science. ...

John Noble Wilford in
The New York Times 8-10-90

WHERE IS THE TRUE FRONTIER OF SCIENCE?

Research exploration right here on Earth's surface, the atmosphere, the ocean bottoms, and the planet's interior can produce more meaningful knowledge with less expenditure than space probing. Exploration of the oceans' water columns and the Earth's crust have produced dramatic bits of knowledge since World War II.

We refer to the discoveries of hot water vents along the fracture zones of the tectonic plates where forms of life exist using dramatic differences of chemistry. Photosynthesis—the reaction of sunlight on sulphur compounds—was accepted as the key to life on Earth.

But it took the exploration of hot water vents by small submersibles to discover that life can exist and multiply in radically different environments. Initial discoveries had been made in the Pacific and Atlantic oceans. Now research has revealed its gardens of 5-foot tube worms, foot-long mussels, and strains of bacteria that can exist in the Gulf of Mexico. Unlike the worms, mussels, and bacteria of the other oceans, which depend on bacteria and sunlight breaking down the hydrogen sulfide found there, other mussels found in shallower water derive their nourishment from methane.

Discovery of these different forms of life fascinated marine biologists and geologists. This mother lode of information will continue to keep scientists busy for years to come. They will make more discoveries, all of them close to home, not millions of miles to billions of light years away. Stand by for more fascinating news from the bottom of the ocean, where strange forms of life exist and where sources of energy lie untapped.

From the editorial by Larry L. Booda,
Editor Emeritus, Sea Technology 37(7):7

LATE NEWS: 15th ANNUAL NEW YORK UNDERSEA EXPOSITION

March 22-24 in the Westchester County Center, White Plains, N.Y. Everything to do with underwater and this year includes a program on seashells. To close, Nikon puts on a multi-projector slide show of underwater creatures — every year it receives a standing ovation.

From Elizabeth Lester in IRRADIANS, LISC

LETTER FROM MARTINIQUE

Dr. Codman Hislop
Captiva, Florida

I thought I would mine Kurt Grosch's letter, written last June from Nocala Port, Mozambique, to my old friend Tom Munyan, noting especially some startling things he had to say about the local market in rare shells - very rare shells, indeed. I thought I would brief what he had to say about the fleets of trawlers ".... from almost every nation from Spain to Japan," and what those fleets are bringing up in Mozambique waters, greater treasures by far than the fish they are sent out to catch.

And then, as I read his long and detailed letter, I sensed the dark heart of Africa, and I think you should hear it, too.

Kurt is 78, still working for an import-export firm called CLASSICA LDA, based, apparently, in Portugal. "Sure, there was a time," he writes, "when I had enough money for retirement, either in Kenya or R.S.A., but the independence [came] and the following many reforms changed the Escudos to Metacais, and the never ending inflation gobbled the Metacais up. The result is that we live just from month to month, on a salary which never covers more than the barest needs....what, seven years ago sufficed to run my household in Chacos for a month is hardly enough to feed a man for a day, unless he lives on beans or cassava root; and the average man's daily wages never, or hardly ever, cover the price of a soft drink! Most prices seem to be oriented to the black market quotation of the Dollar, which is paid with 2000 Metacais. Thus, a reasonably well paid office worker, who earns, say 20,000 Metacais a month, earns effectively not more than the buying power of U.S. $0.33 (thirty-three cents) per day, and no wonder that he can't afford a soft drink."

The democratic revolutions in Eastern Europe reached Mozambique and neighboring African nations with the force of idle gossip. "... everything is now returning into the old trend. There is still only one party, the government's party, the FRELIMO. In other words, only the sails were shifted, according to the new wind, but the course remains the same. And the fact that the power is still in the same hands... that the army still remains the strong arm of the party, means that Maputo no longer sees any danger to the system, possibly with a hopeful eye on a future black South Africa as a partner for economical development independent of the northern hemisphere."

Kurt notes that the shops are full of luxury goods, "but no essential things like soap, detergents, disinfectants, antibiotics, vitamins...etc., no bread, and no tea. These people sometimes do not have a piece of manioc to feed the kids - but an air conditioner and a cassette player they must have. Whether the cassette is something by Wagner or by Madonna makes no difference. The main thing is that it makes as much of a racket and hell of a noise as possible, at least more noise than the thing of their neighbor......these people who have learned nothing from experience and experiment during a thousand years, neither stick to any working schedule, any mutual contract or promise....for them everything is play-acting, make believe, pretending. Facts, reality, evidence bear little weight, and these range equal with dream, imagination, fantasy and hallucination....an anthropoligist says they are like so many other primitives, still in the process of changing from the stage of the dominating soul to that of the dominating intellect."

Kurt's last observation, born of the Mozambique in which he lives as a saddened and sometimes-philosopher, is worth pondering: "I am sure that little or no attention was paid to the capacity of people when the industrial countries began pouring billions into the bottomless development pit so that [the world's primitives] could be spared five thousand years of human development, and jump, within less than one generation, from the stone or bronze age directly into the computer century...some day in the future, the consequences of that stupendous blunder will be brought home to us.

And so to Kurt and those shells which are our special interest. "The shell business is not especially good.... and I am buying nothing but _Charonia tritonis_ and _Cassis rufa_.... The crew of one trawler (which was in port last week) had several dozens of _Conus milneedwardsi_ of which I bought 15 of the best. They as well had 92 _Cypraea fultoni_.... It is a sure bet that all these trawlers who fish in the waters between Villanculos and Maputo...bring lots of deep water shells in, all the time, and it is only a question of time that we will see these shells for sale at prices of $20 or $50. Well, I was always of the opinion that really no rare or uncommon species exist, except such species which are on their way to extinction, and that every species can be found plentiful, provided one comes to the right spot at the right time."

Kurt Grosch closed his letter with a comment which must envelop the serious collector like a down-east fog: "A trawler was in port here, this week. Had 60-odd _Cypraea fultoni_ for sale. We bought none."

I must say, I would like to have been present when that trawler tied up to the dock.

Reprinted from THE JUNONIA,
PUBLICATION OF THE SANIBEL-
CAPTIVA SHELL CLUB, Inc.
Issue of December, 1990.

[Dr. Hislop taught at Union College and lived in Dorset, Vermont until he retired to Florida several years ago. He was a corresponding member of the New York Shell Club, and on his removal from Vermont made some interesting donation to the NYSC library. We were also pleased to hear of Kurt Grosch, whose name, and personality-by-mail, is familiar to many of us. — Ed.]

Congratulations are in order for long-time New York Shell Club member Dr. Mansfield Fuldner, who celebrated his 90th birthday in January 1991.

Alice Denison Barlow, 1903-1991

Alice Denison Fisher Barlow, who passed away on January 11, 1991 after a short illness, was a long-time member of the New York Shell Club and a noted New York City area conchologist who was perhaps better known for her photography of shells and living animals.

Born in New York City on May 17, 1903, Alice was raised by maiden aunts near then rural Briarcliff Manor in Upper Westchester County, New York. Possessed of indefatigable curiosity and interest in life, she received a teaching certificate from Columbia University Teachers College in 1925. For 10 years she pursued this profession in Rochester, Yonkers, and Brooklyn, New York. I well remember her stories of traveling the then-safer New York City subways at all hours to arrive at the Lower Brooklyn settlement school where she taught immigrant children.

In 1931, Alice married G. Barton Barlow, then a medical student, who became a highly respected heart specialist, practicing near their home in northern New Jersey. Alice and Bart shared 55 happy years, living in Englewood and Tenafly, and she continued to maintain her Tenafly home after Bart's death in 1986.

Alice and Bart began traveling to Florida in the 1950s and their love of nature took them to many places in the United States, the Caribbean and South America, Hawaii, Baja California, Tahiti, Australia, and New Zealand. Their favorite was Sanibel Island - they knew many of Sanibel's legendary personalities.

Fascinated by a child's knowledge of the Latin names for shells, Alice soon became a shell collector and eventually won trophies for her exhibits. At about the same time in the early 1960s, Alice began photographing shells and the living animals, and Bart added shell stamps to his growing philatelic collection. Alice joined the New York Shell Club and the American Malacological Union, was active in the Garden State Shell Club, and was an early member of the Conchologists of America. She became a valued friend of Dr. R. Tucker Abbott, during his years at the Academy of Natural Sciences in Philadelphia, and it was through Tucker's encouragement that her photographs enhanced a number of shell books. Among other books, Alice's pictures were featured in Hoyt's Jewels from the Ocean Deep (1967), Dance's Shells and Shell Collecting (1974), Saul's Shells (1974), Abbott's 1976 Seashells and 1984 Collectible Florida Shells, and most recently the shell postcards available from the Sanibel Shell Museum and Educational Foundation.

Mindful of the importance of preserving the beauties of nature for the future, Alice donated her 3500 lot shell collection, consisting largely of self-collected marine specimens, to the American Museum of Natural History in 1985. Late in 1990, her valuable legacy of shell photographs was transferred to the shell vision bank at the Sanibel Museum, where they will be available for public education.

Alice is survived by two sons, seven grandchildren and many friends who will fondly remember this grand lady of shelling whose ever-present curiosity and love of life always stimulated those around her. Later this Spring, following their wishes, the ashes of Alice and Bart Barlow will be taken out into the Gulf of Mexico off Sanibel Island, where they will always be near the island and the shells they loved so well. The memories of these fine and talented individuals will forever remain with those who knew and loved them.

Walter E. Sage

Jane Arrowsmith Zager

We have received word of the passing at age 76 of Jane Zager, who was active in the New York Shell Club in the 1960s and 1970s. She will be missed.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

Recording Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, N.Y. 11208
718-277-2076

Corresponding Secretary

RAE VARGA
3-01 Bellair Ave.
Fairlawn, N.J. 07410
201-796-1665

President

AL SCARPETTI
283 W. 11th St.
New York, N. Y. 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, N. Y. 11223
718-449-0244

Historian

NICK KATSARAS
27 N. Dean St.
Englewood, N.J. 07631

Treasurer

THETA LOURBACOS
66 W. 94th St., #20C
New York, N.Y. 10025
212-866-1298

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, N.Y. 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB, INC. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family--with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas in U.S. currency.

The Corresponding Secretary should be notified promptly of any change of address.

NEW YORK SHELL CLUB

INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1990 - 1991

Please consult the current edition of the NOTES for confirmation of meeting dates and place.

Meetings are held the second Sunday of each month, September through June, at the American Museum of Natural History at 2 P.M., except for the April and May meetings; the location of the social/auction April meeting will be announced later, and the May meeting will be on the first Sunday in May at the Museum. The Museum is at Central Park West and 79 Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

1990	Sept. 9	Rm. 419	1991	Feb. 10	Rm. 319
	Oct. 14	Rm. 419		Mar. 10	Rm. 319
	Nov. 11	Rm. 419		Apr. 14	
	Dec. 9	Rm. 319		May 5	Rm. 323
1991	Jan. 13	Rm. 319		June 9	Rm. 319

The May meeting will be the first Sunday in May to avoid conflict with Mother's Day. (Note the different meeting room.)

On meeting days, our meeting room will be open at 1:30 P.M. for informal conversation and discussion.

NEW YORK SHELL CLUB NOTES No. 319 June 1991 SUPPLEMENT

1991-2 PROPOSED SLATE OF OFFICERS AND DIRECTORS

President	Al Scarpetti
Vice President	Irving Hoppenwasser
Recording Secretary	Milton Werner
Corresponding Secretary	
Treasurer	Theta Lourbacos
Historian	Nick Katsaras
Directors	Fred Cannon Walter Sage Allen Aigen Larry Potter Edward Cowles
Editor	Dorothy Raeihle

Additional nominations may be made from the floor.

1991 SOCIAL/AUCTION - THANK YOU!

New York Shell Club's 1991 Social Auction was a big success. There were many fine shells, books and other objects to be auctioned, and the Club's treasury has benefited substantially. Many people contributed to making it a success, giving their time not only at the time of the Social/Auction, but in the weeks before it. This involved preparing the shells to be auctioned, making the lists, bagging shells for the bargain table, doing a big mailing, and all the other necessary preparations.

We wish to thank the following people for their contributions. We hope the list is accurate; please note that the order in which people are listed is purely random and bears no relation to the size or type of contribution. If anyone has been left out, please let us know--the omission was not intentional.

Dorothy Jensen
Al Scarpetti
Walter Sage
Marty Gill
Ed Cowles
Alan Aigen
Arline Reimann
Hans Reimann
Linda Ciaston-Murphy
Rae Corbeil
Mike Werner
Carol Lindsay
William Lindsay
Sol Weiss
John Cole
Romuald Crepulkowski
Bob Bendersky
Phyllis Martignoni
Theta Lourbacos
Mavio Schaller
Kavin Schaller
Mary Anne Bastek
Richard Many
Nick Katsaras
Alma Pierce

OFFICERS AND DIRECTORS
NEW YORK SHELL CLUB

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History (unless advised). Present your membership card for admission to the Museum for the meetings.

PROGRAMS

SUNDAY, JUNE 9, 1991, at 2:00 p.m.: Rm. 319 American Museum

ELECTION OF 1991-2 OFFICERS AND DIRECTORS
(see SUPPLEMENT, No. 319 NOTES for proposed slate)

"POT-POURRI" OF BEAUTIFUL SHELLS, MARINE AND LAND SHELLS
by Richard Goldberg

SUNDAY, SEPTEMBER 8, 1991 - First meeting of 1991-2 Season

PROPOSED OCTOBER MEETING - Delaware Museum Field Trip

CONTENTS

Page

1991-2 Proposed Slate of Officers and Directors — Supplement
1991 Social/Auction - Thank you! — Supplement
Highlights of Recent Meetings — Milton Werner — 2

PUBLICATIONS:

Illustrations Conchyliologiques — Review by W.Sage — 4
Marginellas by Lipe — Review by W. Sage — 5

NOTES and NEWS

1991 Good Year to Give Museum Your Collection — 5
How a Scallop Shell Became a World-Famous Trademark — 6
Request for Information - Should The Cowry Be Revived? — 6
Malacological Journals and Newsletters, 1773-1990 — 7
COMING EVENTS — 5,6,8
Feeding System in Cones — Wayne Harland — 7
Industry Profile: The Frank M. Flower Co. — Gregg Rivara — 9
The Curves of Seashells, Etc. — 10
Zebra Mussel Watch Invoked in Florida: Notes and Comments — 10
Invasion of the Zebra Mussels — J.Madeleine Nash — 11
Giand Clams of Tonga — Dr. Richard Chesher — 12
Conchologists of America Convention — 13

HIGHLIGHTS OF RECENT MEETINGS

JANUARY 13, 1991 The 393rd meeting of the New York Shell Club was called to order by President Al Scarpetti at 2:30 p.m. in Room 319 of the American Museum of Natural History. Attendance was 13 members.

Al Scarpetti reported that he had not yet been able to talk with Jon Greenlaw of the Long Island Shell Club about the proposed trip to the Delaware Museum, since Jon had been on vacation. Al added that he will inquire as to the possibility of a member of the Long Island club presenting a program to NYSC in the near future.

Al then offered the reminder that the program for February would consist of brief talks by members on shells of special interest to them. The subject of the March program will be shelling on the big island of Hawaii by Rich Kelly.

The doorprizes were a pair of Conus gubernator, won by Milton Werner, a Harpa major, won by Ed Cowles, and a Melo miltonis, won by Al Scarpetti.

The speaker was Nick Katsaras, whose subject was "Worldwide Cones." He showed excellent close-up photographs of more than 70 specimens, noting that all of them were of "gem" grade. He commented on such aspects as locality and comparative rarity, adding individual reminiscences on some of the specimens that had passed through his hands and some that he has been unable to part with.

Ever mindful of his responsibilities as Club Historian, Nick ended his presentation with some slides made at the 1975 convention of Conchologists of America, held in Virginia Beach, VA - some familiar faces and less-familiar rear elevations of fossil collectors at work and play in Rice's Pit in Virginia, and a group photo made a few years before of past presidents of NYSC.

Milton Werner, Recording Secretary

FEBRUARY 10, 1991 The 394th meeting of the New York Shell Club was called to order by President Al Scarpetti at 2:18 p.m. in Room 319 of the American Museum of Natural History. Attendance was 11 members and three visitors.

Al Scarpetti announced that a sympathy card, in the name of the Club, had been sent to the family of the late Alice Barlow, a long-time NYSC member. He then introduced the visitors. One of them, Angela Friedlander, had with her two baby turtles that she hoped someone could identify. She had bought the mother in Chinatown, and the babies hatched, in her hand, in August. The seemingly healthy pair had never eaten. Although they attracted prolonged attention, they remained unidentified.

Concerning the coming trip to the Delaware Museum, Al said that the mode of transportation would be decided on when the number attending is known. He is waiting to hear from Jon Greenlaw. Romuald Czepulkowski volunteered to work on the preparation committee for the April meeting.

The program consisted of brief presentations by members. Eli Horowitz opened with some observations on abalones. He described and compared specimens of several species, noting that only one lives on the east coast of the U.S., and that the muscle scar is an aid to identification.

Henry Gordon had brought shells chosen for their interesting shapes. One was an especially large Opeatostoma pseudodon from West Mexico, and another, Bolma girgyllus, a Philippine astraeid. He ended with what he described an unpublished holotype, destined to be named "Semiturritella pseudoaurantium" - a flat-backed decorative pin in gilded metal.

Nick Katsaras displayed a number of Cypraea that illustrated size difference within species. These were cervus, lynx, mappa, and tigris. The latter also showed the range of variation in color and pattern. The largest *tigris* he could show only as a photo that appeared in *Hawaiian Shell News*, of one that measures 8 1/4 inches long.

Ed Cowles displayed all nine species of *Harpa*, noting that the ventral color blotches are sometimes important in differentiating between species.

Romuald Czepulkowski showed and commented upon a number of beautiful shells in the land snail family Bulimulidae.

Al himself "closed the show" with an exhibit of shells he had bought from Hugh and Marguerite Stix, and shared reminiscences of his visit with them. He had them autograph a copy of their book, "The Shell", which he will donate to the April auction.

The doorprizes were donated by Walter Sage, who had collected them on a recent trip to Gobernadora Island, Panama. The shells were *Phyllonotus regius*, won by Levana Horowitz, *Cypraea robertsi*, won by Dr. Walter Jacobs, and *Marginella accola*, won by Doreen Pokoyk.

Milton Werner, Recording Secretary

MARCH 10, 1991 The 395th meeting of the New York Shell Club was called to order by President Al Scarpetti at 2:18 p.m. in Room 319 of the American Museum of Natural History. Attendance was 14 members and one visitor.

After introducing our visitor, Al mentioned that Dorothy Jensen's mother had died, and that a sympathy card had been sent in the name of the Club.

Although no date has been set for the trip to the Delaware Museum of Natural History, it has been arranged that the bus will pick up passengers at St. John's University in Queens, and at Bryant Park in Manhattan.

Al reported that Editor Dorothy Raeihle had informed him that the typist who had accepted the job of typing the Notes had returned the first sheaf of material untouched, along with a note saying that she couldn't take the job. Dorothy cannot resume the job as the arthritis that plagues her extends to her hands.

The doorprizes were a *Conus ione*, won by Al Scarpetti, *Conus canonicus*, won by Ed Cowles, and *Conus genuanus*, won by John Bockleman.

Walter Sage mentioned the coming annual convention of the Conchologists of America, to be hosted by the Long Island Shell Club, and had copies of the registration form available.

Historian Nick Katsaras drew attention to a display of photographs he had laid out, some of shell, others of NYSC members and other conchologists.

The speaker was Richard Kelly, whose subject was "Shelling on the Big Island of Hawaii." His photographs and descriptions of shells, scenes and flowers recreated a rewarding shelling experience, which extended also to Maui and Oahu. Of the great variety of genera and species he returned with, the emphasis was on *Conus* and *Cypraea*. One of his prizes was a *Cypraea tigris* measuring 104 mm. He is understandably proud of this beautiful specimen.

Milton Werner, Recording Secretary

DELAWARE MUSEUM BUS TRIP POSTPONED

The joint New York and Long Island clubs' bus trip to the Delaware Museum of Natural History, most recently scheduled for Sunday, June 2, 1990, has been temporarily postponed, due to conflicting commitments of many participants. We will continue to work toward an early Fall date for this trip, and currently are considering the first Sunday of October, the 6th, as a possible date.

HIGHLIGHTS OF NYSC APRIL SOCIAL AND AUCTION

APRIL 14, 1991 The 396th meeting of the New York Shell Club was held at Dorothy Jensen's Broadway Dance Studio, Astoria, Queens. The doors opened at 11:00 a.m. for examination of auction shells and purchase of bargain table material. Sol Weiss served as auctioneer, assisted by Allen Aigen and Walter Sage. Bidding began at 1:00 p.m. and remained brisk until all was sold by approximately 4:00 p.m. Attendance was 43 members and guests.

Among the shell-related items that were donated were two pieces of art work by our resident artist, Al Scarpetti. A collage in color, titled "Tide Pool", sold for $101. A pen-and-ink titled "Tea Roses" brought $55. Al also donated a copy of the original edition of "The Shell", autographed by Hugh and Marguetite Stix, which went for $50. The text of this book is by Dr. R. Tucker Abbott.

The winning bids for the more than 155 shell items offered included: a gem, 4-inch Conus gloriamaris, with operculum, $151; Cypraea aurantium, 3 3/4", $112; Cypraea tessellata, 1 1/2", $50; Cypraea mus donmoorei, 2 1/4", $35; Murex articulatus, 3 3/4", $28; large Argonauta argo, $27; Conus panniculus, 2 3/4", $26; Murex gambiensis, 2 1/4", $25; and Voluta vespertilio, 3 3/8", a dextral and sinistral pair, $24. A real treat was the spirited bidding for some of these shells.

Bags of shell assortments on the bargain table were snatched up enthusiastically. The door prizes were a copy of Veronica Johns' "She Sells Seashells", a polished Turbo sarmaticus, and a shell plaque.

Refreshments that included punch, cheese, cold cuts, cake and coffee drew strong attention throughout the afternoon.

Milton Werner, Recording Secretary

REVIEW:

ILLUSTRATIONS CONCHYLIOLOGIQUES - Chenu's Color Plates

I've just received the most marvelous item for review - the set of 4 Chenu plates just reproduced for the benefit of the Bailey-Matthews Shell Museum to be established on Sanibel island, Florida. Exquisitely crafted on the manner of the original Chenu work, these large size (14" X 20"; 35 X 50 cm) lithographs would be a wonderful gift for yourself or that sheller we all know who has everything shell-related. Dr. R. Tucker Abbott, Founding Director of the Sanibel Museum, has provided explanatory covers for these plates, and has included the original captions that accompanied Chenu's sumptuous volumes, which began in 1842 and continued over a ten year period, culminating in 85 parts, totaling 482 plates, 358 in gorgeous color and precise detail - truly a work of art!

The four plates selected by Dr. Abbott are Plate 7 - Spondylus regius and S. zonalis; Plate 26 - gloriously colored Pecten pallium (14 shells in all); Plate 34 - Oliva elegans, O. maura [vidua], O. textilina, and O. angulata [incrassata], with well-executed living animals; and Plate 2 - a stunning ventral view of Strombus gigas.

Youe exclusively numbered and autographed set of 4 Chenu reproductions will be sent to you on receipt of your check for $250.00 sent to "The Shell Museum and Educational Foundation", P. O. Box 1580, Sanibel, FL 33957. Remember, this is an edition that's limited to 250 copies, so the set is truly a collector's item - an opportunity to possess a work of conchological art never before available to the shell collecting public. Set Number 1 was auctioned for $2500.00 at a dinner earlier this year at which Raymond Burr and Robert Benevides, Honorary Fund-Raising Campaign Chairmen, were guests of honor, so you have the wonderful opportunity to add this set to your collection for a tenth of that price - a real bargain. Order your set TODAY!!

Walter E. Sage

PUBLICATION ANNOUNCEMENTS:

Marginellas by Robert Lipe - a complete guide to the Marginellas. 250 species illustrated on 18 black and white plates; 18 species illustrated on the color cover. Shells from each region are pictured together in actual size; additional plates enlarge tiny species for easier identification. Some synonymies are given; an index to species treated is provided; there is no bibliography.

This 5 1/2 X 8 1/2 paperback is the newest reference available on these gems of the seas. Make check or money order for $15.95 payable to The Shell Store, 440 75th Avenue, St. Petersburg Beach, FL 33706. Postage free if prepaid.

"Cypraeoidea and Lamellarioidea (Mollusca:Gastropoda), from the Chipola Formation (late Early Miocene) of northwestern Florida" by Luc Dolin. Tulane Studies in Geology and Paleontology, vol. 24, nos. 1-2, pp. 1-60, 64 illustrations.

"This contribution increases the number from eleven previously known species (six described from the Chipola Formation) to 20 species of Cypraeoidea and six of Lamellarioidea living in Florida during the late Early Miocene, a total that makes the Chipola assemblage the most diversified lower Miocene cypraeid fauna in the New World, second only to western Europe in the entire world."

Those interested in either cypraeids or Florida mollusk fossils will want to own this authoritative publication. Send $12.00 to Dr. Emily H. Vokes, Dept. of Geology, Tulane University, New Orleans, LA 70118.

Walter E. Sage

1991 Good Year to Give Museum Your Collection

According to a Governmental Affairs Bulletin from the American Association of Museums, a clarification policy on appreciated property will help donors of collectibles (which includes shell, of course) in taking advantage of the 1991 one-year-only restoration of the fair market value deduction for charitable donations of personal property. The 1990 Budget Reconciliation Act restored the market value deduction for 1991 only. The new clarification states that IRS has now ruled that there can be a carry-over when the 1991 deduction exceeds the percentage limitation on charitable deductions.

The new ruling will help shell collectors to decide when best to give their collections to a museum. The rules do state that only collections to reputable, non-profit institutions that can make use of the donations will qualify for the 1991 rules. In other words, you can't give your collection to a park and expect to get the deduction at fair market value unless that park intends to set up your collection for display. A museum with a shell collection certainly would qualify.

Texas Conchologist 27(2):56.

I have been following this situation and have a bit of additional information. If you wish further clarification, write to Walter Sage, c/o New York Shell Club NOTES, American Museum of Natural History, New York, NY 10024-5192.

COMING EVENTS:

JUNE 14 - 16 The Jacksonville Shell Club will hold its last shell show at the Jacksonville Beach Flag Pavilion, before that facility is torn down later this year. A highlight of the event will be an auction including the collection of the late Donald C. Campbell.

July 7 - 12 The annual Conchologists of America convention, Melville, NY. See registration form and details elsewhere in this issue of NOTES.

July 15 - 20	First Latinamerican Congress of Malacology - at Simon Bolivar University, Caracas, Venezuela. Details may be obtained by a letter to Susana Ferreira Duarte to the above institution, at Apartado Postal 89000, Caracas 1080, VENEZUELA.
NOW - August 24	"Kingdoms of Land, Sea and Sky:400 Years of Animal Illustration" A cross section of the finest and most decorative examples of animal illustration selected from the enormous collections of the New York Public Library. Visit the Gottesman Exhibition Hall, at the library, Fifth Avenue and 42nd Street, Manhattan.
August 31 - September 1	Gulf Coast Shell Show - at Panama City Mall, Panama City, Florida. Entry Deadline - August 15. Write Cindy Fleming, 2837 Douglas Rd., Panama City, FL 32405, or call 904/785-3640.

How a Scallop Shell Became a World-Famous Trademark

Seashells carried halfway around the world - from an ocean floor in the Orient to Marcus Samuel's curio shop near the London docks - started a chain of events that created one of today's best-known trademarks.

Sailors coming off their ships sold the seashells they had collected to the curio shop owner. When used on ornamental boxes and trinkets, the shells found favor in mid-Victorian eyes, and the merchant imported thousand upon thousands of shells.

Later, the sons of Marcus Samuel gave this Far Eastern trade a new dimension by shipping the first bulk cargo of kerosene through the Suez Canal. They gave seashell names to their ships, and when a company was formed to engage in the oil business, the scallop shell became its trademark.

Perhaps it was out of sentiment for their father's beginnings that Marcus Samuel's sons thought of the shell. Yet their choice proved most appropriate for the enterprise that was to become the Shell Companies.

Since antiquity the shell has symbolized the sea, the voyage and the quest. Venus, born of the sea, was identified with the shell. It was the badge of pilgrims to the shrine of the apostle, St. James - and of Crusaders to the Holy Land.

In our day, as name and trademark of the Shell Companies, the shell continues to be the sign of the quest. Shell men search for oil in forests, deserts and under the ocean floor. Then the quest goes on in Shell laboratories where researchers seek new products from petroleum.

When you see the Shell sign, think of the importance of the shell in the history of mankind and as the symbol of the quest for new ideas.

Shell Oil Company, 1961

Request for information - Should The Cowry be Revived?

The Cowry magazine, edited by Lt. Col. R. J. Griffiths, published Vol. 1 (nos.1-8) between December 1960 and August 1965, and ended with no. 1 of Vol. 2 issued at some point in 1967. It is my hope that the magazine can be revived and published as a quarterly journal dealing with all aspects of the Cypraeacea, extant as well as extinct. It is envisioned as a refereed technical periodical whose wide distribution and competent editorial board would warrant publication of original descriptions. Contributions would also be solicited from those who study cowries and related families as an avocation.

The following questions are submitted: 1) Are you in favor of reviving The Cowry and would you subscribe? 2) How much would you be willing to pay and what size would you prefer for the publication? 3) Would you like to see a trading/buying/selling section? 4) Are you a potential subscriber, contributor, or reviewer? Write Dr. Jiri Zidek, New Mexico Bureau of Mines, Campus Sta., Socorro, NM 87801.

MALACOLOGICAL JOURNALS AND NEWSLETTERS, 1773-1990

An article bearing this title was published in The Nautilus 105(2):39-61, April 1991 by Drs. Rudiger Bieler, Field Museum of Natural History, Chicago, Illinois and Alan R. Kabat, Smithsonian Institution, Washington, DC.

To quote the abstract: "This compilation lists the 286 malacological journals and newsletters (representing 374 titles), arranged by continent and country. The place, duration, and status of each publication is given and changes in titles are cross-referenced. Of these serials, 157 are still published. It is determined that about 25% of current malacological publications are published in these journals devoted solely to mollusks. The geographical distribution (31 countries represented) and the usage of malacological journals are analyzed in terms of the broader context of the scientific journal literature field."

This publication is a fascinating look at the many and varied titles pertaining to mollusks that have appeared in a period of slightly more than 200 years. I would certainly urge any "malacological bibliophile" to enjoy some pleasant hours going over this paper - you will find the experience fun.

To mention just two of the 169 entries listed for the United States, I here cite:

AMERICAN CONCHOLOGIST. Quarterly Bulletin of the Conchologists of America, Inc. [Louisville, Kentucky]. 15(2) [1987] - current. Continuation of Conchologists of America Bulletin. [P. O. Box 8105, Saddle Brook, NJ 07026-8105, USA].

NEW YORK SHELL CLUB NOTES [New York]. 1 [1950] - current. [Department of Invertebrates, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192, USA].

I certainly consider the latter citation a tribute to Editor Dorothy Raeihle.

Walter E. Sage

FEEDING SYSTEM IN CONES

by Wayne Harland

The genus Conus is well represented in the Caribbean Province with over 100 named species. Cones are a popular family with collectors, and several members of the family are considered the "classic rarities" for conchologists.

Cones, along with turrids and terebras, belong to a superfamily called CONACEA. Members of this superfamily are grouped because of their unique feeding apparatus. They are called "toxoglossans", loosely translated from the Latin as "poison tongue". They possess a barbed tooth which inject poison into their prey either to kill or immobilize it for consumption. These poisons are chemically complex and are still a subject of study by scientists. All cones are poisonous, but some have more dangerous toxins than others. There are several cones which have poisons so strong that they may even be a hazard to humans.

Cones are divided into groups based upon the type of prey upon which they feed. There are three types of cones: piscivores, those which feed on fish; molluscivores, those which feed on other mollusks; and vermivores, those which feed on worms. In the caribbean Province there is only one piscivore, Conus ermineus, the Turtle Cone. There are no molluscivores - these are species of the Conus textile group, the netted, or tent cones. They are widely represented in the Indo-Pacific and Panama, but oddly, none inhabit the Caribbean Province.

The Caribbean cones, then, are almost exclusively worm feeders. These cones can be divided into groups which are identified by their feeding habitat. There are the shallow surface and rubble feeding cones, like Conus mus and Conus regius; the sand and grass feeding cones like Conus jaspideus, Conus daucus, and Conus spurius; and the reef dwelling cones like Conus granulatus, Conus cardinalis, and Conus patae. There is also a very deep water habitat where Conus mazei, Conus armiger, and Conus amphiurgus are found, but very little is known about their behavioral or predation habits. It is theorized that many species of cones have become very specialized in their evolution, primarily because of isolation from other island groups by very deep water which prohibits their interbreeding. Other factors may be selectivity of their prey and competition from other species.

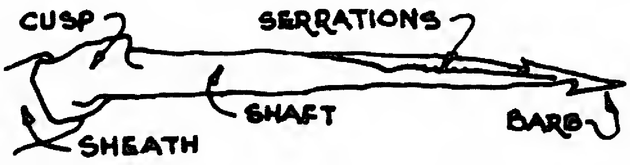
In addition to physical differences which separate the species, there are differences in their feeding apparatuses as well. Scientists are now beginning to use the study of this feeding system as a basis for distinguishing species. The primary feeding apparatus is the barbed radular tooth. The radular tooth is found at the end of a hollow sheath in the cone's feeding mechanism. It is held in place by a large cusp, similar to the head of a nail, and in some species a large spur on the cusp may be present. The length and shape of the shaft varies between species: long and narrow in the fish eaters, medium and narrow on molluscivores, and short and wide for vermivores. The barb area is where the most variety between species seems to occur. This barbed area seems to be most tailored to the type of prey.

Fish eaters have a large, well developed barb with a long area of serrations to help keep the tooth securely fastened in the prey while the poison does its work. Molluscivores seem to have a smaller barb, leading one to believe that since the prey is not very agile, the radula may be used in a "multiple thrust" attack, and permanent attachment may not therefore be necessary. Vermivores carry characteristics of both types. Some worm eaters have large barbs and cusps, while others show less size in one or the other area. Possibly those species which feed on coral burrowing worms need a large barb and very secure anchoring to the sheath to "pull" the worm from its hole in the coral after it has been immobilized. Others, which feed on surface worms, may not need as elaborate an anchoring system to prevent the escape of their prey. A typical radular tooth is shown here.

In the illustration of a typical radular tooth, the standard components are identified. This tooth is a typical vermivore tooth, with a large, bulbous cusp, small serrations at the base of the barb, and a relatively small, stubby shaft. This illustration was based on a radula from a Conus harlandi, a shallow water sand and grass dwelling species from the Bay Islands of Honduras. The radular tooth is a replaceable mechanism, and the cone carries an ample supply of spares which can be used to replace lost or damaged teeth.

radular tooth is shown in Figure 1.

TYPICAL RADULAR TOOTH
Figure 1



This feeding system is quite involved for an invertebrate, and while science knows the mechanics of how it works, questions concerning how prey are found, the selectivity of certain cones preying only on one species, and how quickly prey are disabled by the poisons still remain to be answered.

Sanibel-Captiva Shell Club's
The Junonia, February 1991, pp. 5,6

American Littoral Society Field Trips: Call: 908/291-0055 for details

June 14-16	Pine Barrens, NJ	July 10-21	Pacific Northwest
June 12-16	Montauk Weekend	July 12-13	Wreck Diving, NJ
June 20-29	Galapagos	August 3	Crab Feast, MD

Page 9 reprints a most interesting account of Long Island's premier mariculture firm.

Industry Profile: The Frank M. Flower & Sons Company

by Gregg Rivara

Often called the East Coast's most successful shellfish mariculture firm, the Frank M. Flower & Sons Company, located in Oyster Bay, New York on Long Island, was started in 1887 by Charles Flower and has remained in business through many ups and downs in the shellfish industry. I recently had the privilege to interview Charles' grandson, Mr. Butler Flower, who is 88 years old. Mr. Flower still works between 5 and 6 days a week designing and supervising the building of the company's dredges. His son, Franklin, manages the day-to-day operations of this firm with about 50 employees. The company annually field plants between 40 and 50 million hard clams (*Mercenaria mercenaria*) and 70 to 100 million American oysters (*Crassostrea virginica*) on about 3,000 acres it leases from the Town of Oyster Bay. When they reach market size the clams and oysters are harvested by six dredge boats -- four are traditional wooden oyster boats, while two are larger steel-hulled vessels that have a sophisticated "vacuum cleaner arrangement" that allows the company to harvest product and also clean up the bottom before planting.

The key to the company's continued success is the hatchery. The last commercial set in the Oyster Bay area was in the middle 1940's. And by 1960 there were virtually no oysters left in the area. The company survived this period largely by selling wild set mussels and clams. But Flower knew there was another way besides Mother Nature to get a set of oysters, since in the 1920's he had worked with two shellfish pioneers, Wells and Glancy. He knew that a hatchery was needed. In 1963 a hatchery was built in nearby Bayville. Flower was quite blunt about it -- without the hatchery there would be no oyster business left in Oyster Bay today. Considering that there were once 200 oyster companies in New York and Connecticut, and now there are only two, and the fact that the Oyster Bay-Bayville area has some of the last remaining shellfish growing areas that are still open to shellfishing in Nassau County, it is a wonder that the Flower Company is still in existence.

Despite the success of the company, there are problems that threaten its existence. Flower felt the biggest problem was pollution in the harbors, both from lawn fertilizer, stormwater runoff and inefficient sewage treatment facilities. Flower summed it up like this: "oysters and people don't get along together". However, the company uses the closed areas for nursery grounds and then moves these one-year old shellfish to growout beds that are in open water. One of the reasons why so much water is open to shellfishing so close to New York City is the fact that the Oyster Bay area is also known as the Gold Coast of the North Shore of Long Island; it is in an area of estates and low density housing. Recently there has been a push in Oyster Bay to develop waterfront parcels currently used for marine industry into condominium developments. The Flower Company has spent a lot of time fighting these developments because they see that they could be the downfall of the oyster in Oyster Bay.

In 1983 the protozoan parasite MSX affected the company's oysters; they lost about 90%. It was at that time that the company decided to go into hard clams as a back-up even though the clams grow quite a bit slower than oysters (5 years vs. 2 years). The company has worked with Rutgers University in the development of a MSX-resistant oyster for Oyster Bay. They are also involved in the commercial testing of MSX-resistant oysters sponsored by the Northeastern Regional Aquaculture Center. When asked about depuration, Flower felt that this shellfish cleansing technique was not 100% effective and that the longer-term method of relaying is better. He also felt that the best thing was to keep the harbors clean so that shellfish cleansing was not necessary.

As to the success of the company, Flower credits the intelligent, faithful and loyal employees, like Dave Relyea and Joe Zahtila who have run the company's hatchery since 1969.

As I left Butler Flower he was showing a worker how he wanted a dredge part welded. And, I realized that as long as the company could effectively face the changes ahead, there was no reason it couldn't be around for another 100 years.

ATTENTION:
Offshore Fishermen

If you catch any uncommon or unusual fish in deep water, please save them for me.

Put them in a plastic bag and freeze.

Call Emerson Hasbrouck at the Cornell Cooperative Extension - Suffolk County Marine Program -- 727-3910.

Thank you.

November/December 1990

THE CURVES OF SEASHELLS, ETC.

The curves of seashells and galaxies, the proportion of playing cards and the Parthenon are all based on the ratio .618034, the magic number, the golden proportion to 1, called "the golden mean" pleasing to the eye. Bernouli, in the 17th century, found the golden mean connected with the strange twists of nature, calling it the logarithmic spiral. Legend has it that the mollusk originated from the earthworm. One day the worm, rendered frisky by the sun, emancipated itself, brandished its tail, and twisted itself into a corkscrew for the sheer fun of it, into a logarithmic spiral. [We know, of course, that there is no truth to this legend - Ed.]

Shellfish from the earliest forms of life exhibit this spiral. Terebra, Turritella, and Trochita all build their bodies according to the logarithmic spiral, as do other snails. One of the most spectacular sea spirals is created by the famed Chambered Nautilus, Nautilus pompilius and related species. As the animal grows it builds ever larger compartments in an expanding spiral. When each new compartment is ready, the animal crawls forward, "slamming the door" behind it with a layer of mother-of-pearl. The old living quarters remain filled with a gas and air so that the shell stays buoyant. Not only does Nautilus build the outside in a spectacular spiral, the inner partitions are also curved in the same graceful form. A wave breaking demonstrates the logarithmic spiral. Also sunflower seed patterns, scaly plates of the pineapple, and pinecones; ram's horns, parrot's beak, elephant tusk, lion's claw. An astronomer, viewing the galaxy photos on a flat plane reports appearances of arms of stars whirling out in spectacular logarithmic spirals.

The musical chord that gives the greatest satisfaction is the major 6th, vibrating almost precisely with the golden mean proportion, good sound to the cochlea of the inner ear which also happens to be shaped in a logarithmic spiral.

Why does the epeira spider always spin its web logarithmically?

Why does a meteorite cause a depression corresponding to part of a logarithmic spiral?

Why do bacteria grow at an increasing rate plotted along a logarithmic spiral?

Why does a comet's tail blaze away from the sun in a logarithmic spiral?

The shell, like the creature within it, grows in size but does not change its shape. The very shape of the logarithmic spiral enables growth to occur without change in form.

from SMITHSONIAN, via the Palm Beach County SEAFARI, May 1991.

Zebra Mussel Watch Invoked in Florida; Notes and Comments

Because of an unparalleled invasion of Dreissena polymorpha, European zebra mussels, in the North American Great Lakes, and an estimated cost to control these new pests ranging from $4 to $8 billion, Florida experts on mollusks are taking steps to meet the challenge. Canadian malacologists and an upstate New York agency also are mobilizing to combat this threat. A slide talk will be held in connection with the 1991 Long Island convention of the Conchologists of America, July 7-12.

A "zebra mussel watch" has been set up at the new Bailey-Matthews Shell Museum on Sanibel Island, Florida, and an exhibit is planned for later in 1991 at the American Museum of Natural History under the supervision of Sidney Horesnstein, Coordinator for Environmental Programs at AMNH. Dr. R. Tucker Abbott will oversee identification of specimens and exchange of information at the Sanibel Museum.

Alarming reports say that the inch-long, zebra-striped, prolific mussels have caused a partial shutdown of Detroit Edison's power plant, forced a Michigan hospital to dismiss patients and cancel elective surgery, shut down the water supply to Monroe, Michigan, for two days, threatened boaters on Lake Erie by sinking navigational markers, and will invade hundreds of water systems over much of the United States in the next few years. See Page 11 for one viewpoint, and Notes 320 for more details.

Nature

Invasion of the Zebra Mussels

They could be coming soon to a river or lake near you

By **J. MADELEINE NASH** MONROE

In a B movie, a marauding mollusk would probably be played by a giant clam. But the real-life monster swimming amuck in the Great Lakes is a tiny creature the size of a fingernail. With its jaunty brown stripes, a solitary zebra mussel looks cute, not threatening. The trouble is that the animal is anything but a loner, and its tendency to form colonies of thousands, even millions, makes it threatening indeed.

ANDREW SACKS FOR TIME

SACKS

Detroit Edison has spent $500,000 cleaning zebra mussels from the cooling system of its Monroe, Mich., power plant. A diver employed by the company displays specimens caught in a nearby canal.

Unknown in North America until 1988, the zebra mussel has become a pest whose exploding population has prompted alarming predictions of millions of dollars' worth of damage to water-supply systems and the ruination of the sport-fishing industry. A year ago, the city of Monroe, Mich., lost its water supply for two full days because intake lines were plugged with zebra mussels. Earlier, Ford Motor's casting plant in Windsor, Ont., found the creatures choking off the flow of cooling water to its furnaces. Boaters, meanwhile, have watched their hulls and engines become encrusted with mussels.

Native to the Caspian Sea region of the Soviet Union, the zebra mussel spread into the canals, rivers and lakes of Western Europe more than 150 years ago. Then sometime in 1986, biologists speculate, a European cargo ship bound for Sarnia, Ont., emptied some of the water it carried as ballast into Lake St. Clair, between Lake Huron and Lake Erie. Biologists first spotted a few zebra mussels in the area three years ago—and the race was on.

Every year each female mussel produces approximately 30,000 eggs. When fertilized, these eggs hatch into microscopic larvae that swirl with the current. Eventually the larvae find a surface to their liking and settle down, mooring themselves with sticky, hairlike threads called byssuses. They reach sexual maturity in massive colonies that pack as many mussels into a square meter as there are inhabitants in a midsize town.

Virtually unchallenged by natural predators, billions of zebra-mussel larvae left their initial colonies in Lake St. Clair and Lake Erie and drifted into Lake Ontario. By attaching themselves to boats, some adventuresome mussels even managed to move upstream into Lake Huron, Lake Michigan and Lake Superior. Similar outriders are expected to start showing up in smaller lakes and major rivers such as the Mississippi, the Susquehanna and the Hudson. "Within 20 years," predicts Margaret Dochoda, a biologist with the Great Lakes Fishery Commission, "the zebra mussel will likely have taken the entire East Coast of the U.S."

For utilities and industries, the zebra mussel represents one of the biggest maintenance challenges next to corrosion. Detroit Edison, for example, has spent $500,000 cleaning the critters from the cooling system of its Monroe power plant. "Our plant," says superintendent Sam Smolinski, "has turned into a zebra-mussel nursery. Frankly, we can't fathom things getting any worse."

Foreign organisms have invaded the Great Lakes before, but few have engendered such apprehension. "The zebra mussel is a keystone species," says zoologist David Garton of Ohio State University. "It has the power to restructure the entire ecological community." The zebra mussel can strip water of algae and other microscopic plants and thus endanger animal life. Native clams are beginning to die off, victims of the zebra mussels' habit of attaching to clamshells in such numbers that they cannot open.

Still, with a little luck (and an increase in predation by native fish like the freshwater drum), the zebra mussel may yet be brought under control. In fact, some evidence suggests that the mussel population in Lake Erie may have peaked. "There are many ways to kill the zebra mussel," observes Ohio State entomologist Susan Fisher. "The trick is to do it selectively" without wiping out other aquatic life. Fisher has recently found that minute traces of potassium, nontoxic to other organisms, reliably send zebra mussels into fatal shock. Paints laced with potassium, she speculates, might protect underwater structures from mussel infestation. Physiologist Jeffrey Ram of Wayne State University in Detroit makes an even more devious suggestion. Zebra-mussel spawning, he notes, is triggered by odors wafting from phytoplankton. These chemical cues ensure that the eggs hatch when the food supply is plentiful. But what if synthetic scents were dabbled like perfume above the mussel beds? A premature spawn, says Ram, would surely doom most of the larvae.

"I do not understand this talk of killing," counters biologist Anna Stanczkowska-Piotrowska of Poland's Agricultural-Pedagogical University. The zebra mussel, she points out, is not without virtues. Its byssuses extrude an adhesive that may have commercial value. Its appetite for foul-smelling algae can markedly sweeten the taste of drinking water. Perhaps most admirable of all, the zebra mussel has performed an act of public service by dramatizing the threat posed by tiny organisms that hitch rides around the world. Both the U.S. and Canada are moving to restrict the discharge of ballast water into the Great Lakes, a measure of ecological prudence that is long overdue. ■

TIME, JANUARY 21, 1991

MARINE ECOLOGY

GIANT CLAMS OF TONGA

DR. RICHARD CHESHER Marine Research Foundation

VAVA'U, KINGDOM OF TONGA—Giant clams, some more than a meter wide and weighing hundreds of kilos, are woven into the folklore and culture of the Pacific Islands. Certainly the biggest and most famous mollusks in the world, these magnificent animals are on the brink of extinction. Working with the people of Tonga, marine biologist Richard Chesher hopes to revitalize the stocks of these important food animals while instilling a marine conservation ethic into the community.

Modern fishing equipment and a commercial ethos are endangering coral reefs throughout Oceania. Islanders who once found plenty of food on the reefs surrounding their isles are now faced with rapidly diminishing catches. Giant clams—the most vulnerable of food sources—have disappeared from many island areas and are now on the IUCN endangered-species list. Yet there is no social or legal mechanism to stop their slow extinction.

The Tongan experiment is an attempt to build public awareness of the need for marine parks and reserves—places where marine animals can grow to maturity and spawn, reseeding the nearby reefs with young. Giant clams are the focal point for this action. By setting up community organized and protected brood stocks of the remaining large adult clams, Chesher hopes that the Tongans will learn the effectiveness and value of marine conservation.

In the last two years, Earthwatch teams have helped find the best places to put the giant-clam sanctuaries and, with the community, have established two community giant-clam circles. This season, volunteers will evaluate how the clam population has grown and how deeply the concept of marine parks and reserves has penetrated Tongan society. Chesher hopes that if the experiment in Tonga works, it will form a pattern for marine conservation that other island governments can follow.

Field Conditions: Volunteers will divide into three teams that rotate tasks. One team, aboard the research vessel *Moira*, will snorkel in Vava'u's clear, shallow waters, sizing clams and mapping their distribution to determine changes in the population over the last two years. Snorkelers will also map clam predators, corals, and crown-of-thorns starfish. A second team will use a boat to measure water depth and movement in the lagoons and a shore-based team will coordinate boat teams and record data.

Participants will stay in the Tongan-style Stowaway Village Hotel with breakfast and dinner provided by the hotel. Lunches will be prepared aboard the research vessel.

Tonga is the last kingdom of Oceania and one of the most picturesque of all the Pacific islands. The survey sites are protected lagoons bordered by white sand beaches and luxuriant coconut palm foliage. Snorkeling conditions are excellent, with most of the activity in areas with more than 100-foot visibility. During August and September team members keep watch for the Pacific humpback whales, which migrate through Tonga on their way to calving waters. *Related interests: Polynesian culture, coral reefs, snorkeling, resource management.*

GIANT CLAMS OF TONGA

TEAM I: Jul 11–25, 1989
TEAM II: Aug 1–15
TEAM III: Aug 18–Sep 1
TEAM IV: Sep 5–19
TEAM V: Sep 26–Oct 10
SHARE OF COSTS: $1,580
STAGING AREA: Vava'u, Kingdom of Tonga

BLUE MAGRUDER

Tonga's reefs long provided enough shellfish to feed most islanders. And though they're still productive, as this Tongan woman's haul shows (above), catches are diminishing. Richard Chesher (below, left) is working with volunteers to slow down the reef's deterioration.

CLAM GARDENER

More than 15 years ago Dr. Richard Chesher saw giant-clam gardens in the Solomon Islands and Papua New Guinea around which he found huge numbers of giant clams of all sizes. Perhaps, Chesher thought, clam circles could revitalize the dwindling stocks of giant clams in the Pacific.

By 1986, the Tongans had built the first giant-clam circle with 100 of the endangered *Tridacna derasa*. "Giant clams are the perfect animals for this kind of culture," says Chesher. "You don't have to feed them, they have no known natural predators, other than man, they don't move around, and they live for 80 years or more. All you have to do is leave a community of them alone in shallow, clear water and they will repopulate reefs."

BLUE MAGRUDER

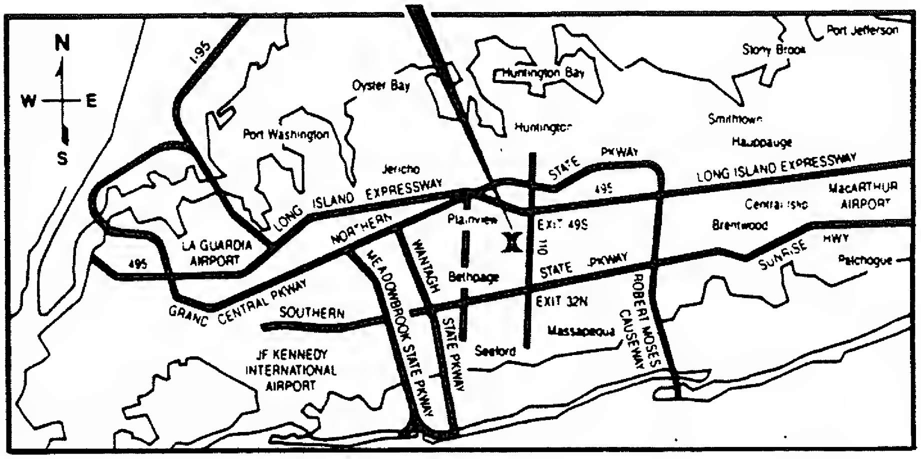
EARTHWATCH December 1988

CONCHOLOGISTS OF AMERICA, INC.
A Collective Devotion To Advancing Conchology.

CONCHOLOGISTS OF AMERICA CONVENTION

The Good Life on Long Island

July 8-12, 1991


HUNTINGTON HILTON

Come One, Come All!! To the 19th Annual COA Convention, at the Huntington Hilton, Melville, New York. Hosted by the Long Island Shell Club, this event will be a time of renewed fellowship, learning opportunities, and fun for all in the unique atmosphere of Long Island.

Accessible by auto, rail, and air, Long Island and nearby New York City offer a visitor a combination of attractions available nowhere else. The scenic beauty of Long Island with its north and south shore beaches, unparalleled historic and cultural showplaces, and warm, friendly people will make this convention one you will remember fondly for many years to come. And New York City can be the perfect beginning or the grand finale to your week of THE GOOD LIFE on Long Island.

The luxuriously functional Huntington Hilton will be the center of our activities. With 305 guest rooms and a Grand Ballroom that will accommodate 1000 people, this hotel is an exceptional gathering place for COA members. Its excellent dining rooms, the indoor and outdoor swimming pools, tennis courts, fitness center, and proximity to shopping, tourist attractions, and transportation add up to a premier convention site for COA.

SUNDAY, July 7 marks the start of our festive week, with early registration scheduled from 1:00 p.m. to 5:00 p.m. Plan to arrive early and enjoy the hotel facilities while greeting old and new friends. You will enjoy our special shell exhibits, including a selection of Long Island treasures. Come early and get a headstart on seeing Long Island.

MONDAY, July 8. Registration will continue from 9:00 a.m. to 5:00 p.m. Sales of COA items and our special raffles will begin. At 2:00 p.m. we will officially convene, with a Welcome Address, timely announcements and door prizes. The first of our educational presentations will follow. From 6:00 to 8:00 p.m. the Long Island Shell Club will host the Get Acquainted Party in the Grand Ballroom. Dinner will be on your own, and there will be ample opportunities to meet friends and share your past year's activities.

TUESDAY, July 9. Following COA/club sales from 8:30 a.m. to 9:00 a.m., the morning and afternoon schedule will be devoted to a series of exciting slide presentations. You will not want to miss any of these talks! Doorprizes will be awarded at breaks - and you must be present to win! The evening's event will be the annual auction, with viewing of donations from 6:30 p.m. to 7:30 p.m., followed by the auction, from 7:30 p.m. to 11:00 p.m.

WEDNESDAY, July 10. Today we have a very special schedule planned for you. Following COA/club sales and doorprize drawings, we will board buses for our sightseeing excursion to Pindar Vineyards, Long Island's largest winery, and the famous Orient Beach State Park, at the far end of Long Island's north fork. At Orient, we will have lunch and you will be able to look for shells in a variety of habitats. We plan to return to the hotel at 5:00 p.m., so there will be ample time for a leisurely dinner. An evening slide program will be a relaxing close to what we hope is a truly memorable day.

THURSDAY, July 11. We have a new treat in store for you today, as you enjoy the first Concurrent Sessions. Selected topics will receive a more in-depth treatment and two slide programs will be shown simultaneously. Attendees will choose which program to attend for each of these three sessions. Details remain to be worked out, but we hope this new venture will allow a greater array of talks at conventions. The Annual Business Meeting will take place early in the afternoon, and then from 4:00 p.m. to 10:00 p.m. will be an event you've all been waiting for - our fabulous Dealer's Bourse! Come prepared to be enthralled by the outstanding array of gem specimens you will be able to examine, and of course, add to your collections. This Bourse promises to be one of the very best ever!

FRIDAY, July 12. The Dealer's Bourse will continue from 9:00 a.m. to 1:00 p.m. - be sure to take this final opportunity to browse and buy. While the dealers are taking down their sales tables, we have another special surprise. We will board buses for a short ride to Sagamore Hill, the home of President Theodore Roosevelt, a National Historic Site, located in Oyster Bay, on Long Island's north shore. We are sure you will agree that this visit will top off a great week and be a grand prelude to the Annual Banquet. Our guest speaker will close the day's activities in a truly memorable fashion.

And after the convention? Consider spending a few days exploring all the many attractions of Long Island and New York City. consult your travel agent or automobile club about all there is to do and see here in New York: We will do our best to answer all questions and provide you with every opportunity to share THE GOOD LIFE on Long Island.

We highly recommend that all those attending the convention stay at the Huntington Hilton. The rates as shown on the accompanying registration form are the best available for such superb facilities, and will be valid from July 5-15. Be sure to call the hotel direct, at 516/845-1000 or 1-800/526-8605 and identify yourself as a COA convention attendee. All meetings will be conducted in the hotel's Grand Ballroom and information on all functions will be in the convention program. Remember that only persons staying at the Huntington Hilton are eligible for the drawing for free lodging during the convention.

Guests of registrants wishing to attend the Get Acquainted Party, Banquet, and field trips must purchase the necessary tickets in advance. In the event of cancellation, we are sorry, but there will be no refunds after July 5, unless events paid for can be resold.

For any other information you wish please contact one of the following:

Walter E. Sage, P. O. Box 8105, Saddle Brook, NJ 07662 201/340-3437
Helen Madow, 43-10 Kissena Boulevard, Flushing, NY 11355 718/463-7745

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
283 W. 11th St.
New York, NY 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, NY 11223
718-449-0244

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family - with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas paid in U.S. currency.

The Treasurer - Membership Chairman should be notified promptly of any change of address.

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1991 - 1992

Please consult the current edition of the NOTES for confirmation of meeting dates and places.

1991	Sept. 8	Rm. 319	1992	Feb. 9	Rm. 319
	Oct. 6	Field trip		March 8	Rm. 319
	Nov. 10	Rm. 319		April 12	Social/Auction
	Dec. 8	Rm. 319		May 10	Rm. 319
1992	Jan. 12	Rm. 319		June 14	Rm. 319

Meetings are held the second Sunday of each month, September to June, except that the October meeting will be a field trip on the first Sunday in October.

Except as noted, meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

NEW YORK SHELL CLUB NOTES No. 320 September 1991 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History (unless advised). Present your membership card for admission to the Museum for the meetings.

PROGRAMS

SUNDAY, SEPTEMBER 8, 1991, at 2:00 p.m.: Room 319, American Museum

Shelling on St. Lucia, Lesser Antilles by Dr. Jon Greenlaw

SUNDAY, OCTOBER 6, 1991 - FIRST Sunday of the month. We will be making the trip to the Delaware Museum of Natural History, Wilmington, DE - details on page 3, this issue of the NOTES.

SUNDAY, NOVEMBER 10, 1991, at 2:00 p.,. :Room 319, American Museum

Shelling in Fiji and Australia - Mel & Sylvia Springer

CONTENTS

		Page
Highlights of Recent Meetings	Milton Werner	2, 3
Delaware Museum Trip, October Meeting		3
Coming Events: 1991 Fall Shell Shows and Meetings		3, 4
Book Reviews:	Walter Sage, R. Tucker Abbott	4, 5, 9
Crown Point Club Disbands		5
New York Shell Club Pins Available		5
Zebra Mussel - Moving Down the Hudson		6
- Sea Grant Institute Fighting		7
- Filtering Sea Water		7, 8
Native Unionid Clams		8
Using Oysters to Clear the Drains		8
Publisher's Announcements		9
Shelling in Oman	Donald T. Bosch	10, 11
The "Riosi" Family	Eliezer C. Rios	12

EDITORIAL NOTE - The task of typing these NOTES has been taken over, at least for the present, by Walter Sage. Dorothy Raeihle continues to collect much material that is used and suggests the possible layout of articles. Material is selected from items seen by us, and we have to choose what is of interest to us and what we think will interest NYSC members. We urge those members who happen upon an item that interests them to send one of us the information and we will try to include such items in the NOTES. We also request that you let us know what type material you would like to see in the NOTES. These are publications of the New York Shell Club, not our own personal letters, so it's right that we attempt to print what you want to read. But we can only do this if you share your finds with us. Let's all work together on this.

Dorothy has a suggestion that we want to share with you. She would like us to run a series of vignettes from various members, each telling the story of how they became interested in shells. I agree that this would make a most interesting series, and it has just been suggested that we might be interested in making a program for a meeting out of these short segments. So, what do we do next? Again, it's up to you - the reader - to share your story. We will try with the December NOTES to start the ball rolling - it depends on what you send us if we can continue this series. Nick Katsaras - let's hear from you!

WS

HIGHLIGHTS OF RECENT MEETINGS

MAY 5, 1991: President Al Scarpetti introduced two visitors, Sidney Lerner and Steve Meurer, members of the Long Island Shell Club, who joined NYSC this month.

Treasurer Theta Lourbacos announced the financial results of the very successful April 14 auction, reporting that approximately $2000 was added to the treasury. Theta initiated discussion on the amount of the contribution to the Old/Johnson Malacology Fund of the American Museum. Walter Sage briefly gave the history of this Fund and recommended that we continue our prior practice of donating 25 percent of the net proceeds to the Fund. Walter also suggested that we request that NYSC be informed of the specific use to which this donation would be directed.

Al Scarpetti announced that the proposed joint New York and Long Island shell club bus trip to the Delaware Museum of Natural History would be postponed at present. He suggested that we try for an early Fall date, perhaps the first Sunday in October would be more suitable to members' needs. Further information will follow.

Al announced that the annual election of officers would be held at the June meeting and that Nominating Chairman Milton Werner would supply the slate of officers which would be reported in the June NOTES.

The doorprizes were Tonna galea, won by Steve Meurer; Conus tulipa, won by Al Scarpetti, and Homalocantha zamboi, won by Ed Cowles.

The slide program for the afternoon was a selection of slides on shelling at Cocos Island, Costa Rica, prepared by Doug von Kriegelstein, a New York native who now lives in Loma Linda, California. Doug related how he learned to scuba to go on his first trip to Cocos island, a Costa Rican national park some 40 plus hours by boat from the mainland. Doug shared with us all aspects of collectingshells at the various islands that make up the Cocos group, from diving to dredging, shoreline to tangle-netting. He had sent along a piece of one of the tangle nets, and it was interesting to note that these nets are 100 feet long by 6 feet wide, and are in place on the bottom for 48 hours, after which they are hauled up in a "tangle", with all the hapless creatures that are wrapped up in the net. Many shells were pictured, including Cypraea isabellamexicana,Conus tessulatus, Muricanthus princeps, Terebra strigata, and Phyllonotus eversoni, the latter an endemic species first taken by Doug and veteran collector Don Shasky. Everyone in attendance were in agreement that this was a really excellent and exciting program on an area none of us had heard much about. We hope to hear more from Doug in the future.

Walter Sage, Substitute Secretary

JUNE 9, 1991: Treasurer Theta Lourbacos noted that attendance at the May meeting, which was held on the first Sunday of the month in order to avoid Mother's Day, had not apparently benefitted from the move. A motion was made that future May meetings be held on the second Sunday, and it was approved.

Visitor Nan Wise, a member of the Paleontological Group at the AMNH, was introduced. Walter Sage reported on the convalescence of Dorothy Raeihle, and Al expressed thanks to those who had filled in for her in producing the NOTES, especially Walter Sage. Al also made note of the address through which copies of the 1992 Shell Oil Company Desk Diary may be ordered.

The Nominating Committee's slate for the annual election of officers listed all the incumbents with one exception: Rae Varga had resigned as Corresponding Secretary. Theta noted that some of the treasurer's work overlaps that of the corresponding secretary's, so she had volunteered as candidate for the position. There were no nominations from the floor, and the recommended slate was elected unanimously.

The door prizes were a Xancus pyrum, won by Henry Gordon; Lambis lambis, won by Theta, and Conus figulinus, won by Larry Potter. Nick Katsaras displayed the premiere edition of "The Shell Collector" magazine.

It was noted that Eli Horowitz had asked, at the March meeting, for the names of those interested in shell swapping, and he will distribute copies of same.

The speaker for the day was Richard Goldberg, whose subject was "Treasures from the Sea." His slide talk was divided into several categories: rare and unusual cones; trawled shells; shells from deepwater traps, and shells collected by SCUBA diving. To the excellent photographs of these specimens he added some of land shells from Jamaica and Palau.

Walter Sage displayed copies of "Seashells of the Northern Hemisphere," by R. Tucker Abbott.

Milton Werner, Recording Secretary

DELAWARE MUSEUM TRIP, PLANS FOR OCTOBER 1991

President Al Scarpetti has been working with Jon Greenlaw, President of the Long Island Shell Club, to finalize plans for this trip. The planned date is the first Sunday of October, the 6th, and this excursion will take the place of our regularly scheduled October meeting. Since October is "right around the corner", those interested MUST notify Al either at the September NYSC meeting or by phone to 929-7430. Al has all details of the planned trip, so all those who want to participate must make it their responsibility to get the data from Al. The price is expected to be the same as the quoted earlier, but we might have to make an adjustment depending on how many people from both clubs want to make the trip. It is important to note that we are not restricting the trip to members of the two shell clubs, so feel free to bring a friend. All details will be available at the respective September meetings of the two clubs.

COMING EVENTS: 1991 FALL SHELL SHOWS AND MEETINGS

Sept. 13-15 Midwest Regional Shell Show
Merrillville, Indiana
Marion Magee, 2117 Fisher Avenue
Speedway, IN 46224 (317) 247-8079

Sept. 19-22 American Littoral Society, 30th Annual Meeting
Woods Hole Marine Biological Laboratory, Woods Hole, MA
Contact: American Littoral Society
Highlands, NJ 07732 (908) 291-0055

This meeting will be headquartered at the Woods Hole MBL Swope Housing and Conference Center and scheduled events include field trips, lectures, a New England clambake, tide pools, beaches, boat trips, and a behind-the-scenes tour of the National Marine Fisheries Service Aquarium.

The American Littoral Society also schedules a wide variety of field trips and we have received their schedule for trips to be conducted through March 1991. This list will be available at the September meeting or contact Walter Sage.

Sept. 21-22 International Shells and Fossil Bourse
Ottmarsheim, France
Michel Rioual, 2 Rue des Vergers
68490 Ottmarsheim, France (089) 26-16-43

Oct. 12-13 Annual German Shell Fair, Stuttgart, Germany
Hans Gorg Niederhoser
Staatl. Museum Fur Naturkunde
Rosenstein 1, 7000 Stuttgart, Germany (0711) 893-6268

Oct. 18-20 North Carolina Shell Show
Wilmington, North Carolina
Dean Weber, 510 Baytree Road
Wilmington, NC 28403 (919) 799-3125

Oct. 19 - Nov. 3	Oregon Shell Show, Portland, Oregon Vivian Holden, 11945 SW Lynnfield Lane Portland, OR 97225 (503) 644-2020
Oct. 26	British Shell Collectors'Club Shell Show London, England Kevin Brown, 12 Grainger Road Isleworth, Middlesex TW7 6PQ England (081) 568-8333
Nov. 9-10	Philadelphia Shell Show, Philadelphia, Pennsylvania Al Schilling, 419 Linden Avenue Glenside, PA 19038 (215) 886-5807 OR 1-800-274-8530, toll free

---

REVIEWS:

Seashells of Southeast Asia

by R. Tucker Abbott. 1991. 145 pp., 52 color plates (461 species illus.) Tynron Press, Scotland. ISBN 1-871948-96-7. Paperback. $14.95, postage free, from American Malacologists, P. O. Box 1192, Burlington, MA 01803.

For a long time there has been a need for an identification manual of the common marine mollusks of southeast Asia. The species in the area of Vietnam, Thailand, Malaysia, and western Indonesia are a strange mixture of the Indian Ocean and Gulf of Siam faunas. 52 exquisite color plates, illustrating 461 gastropods and bivalves, fill this gap. Each species is described, with its full scientific and common name, habitat and geographical range.

Additionally, Dr. Abbott has written an interesting history of the malacological studies of this important crossroads between China, India and Australia. He describes for the field collector over ten types of habitats, explains the nature of "continental and oceanic species", and tells about Asia's vast efforts in the mariculture of mollusks. He emphasizes the beneficial role of shell collecting and champions conservation and sensible sampling of mollusk populations.

If you buy, trade or personally collect shells in the Far East or southwest Pacific, this inexpensive and up-to-date guide will serve you well.

Walter E. Sage

Living Shells of the Caribbean and Florida Keys

by Robert E. Lipe and R. Tucker Abbott. 1991. American Malacologists, Inc., Melbourne, Florida. 80 pp., 6" x 9", many color photos. $8.95.

Now in its 6th printing with over half a million copies sold, the junior author's Collectible Florida Shells has proven to be a most popular and useful basic guide to the marine shells of Florida and the Caribbean. For this new book, Abbott has joined forces with Bob Lipe, veteran collector, shell dealer, and noted photographer of living mollusks, to produce an expanded volume that accentuates the beauty of the live animal while continuing to provide excellent coverage of Florida and Caribbean shells.

Approximately 300 species are illustrated in full color - Pterynotus phyllopterus, P. lightbourni, and several marginellas are new to this volume - and common and scientific names with author and date of description, size, and capsule commentary are given for each species. Seventy photos of live mollusks have been added to showcase the beauty and variability of the animals which make the shells we all love. The photos are clear and crisp, and those of the living animals are especially noteworthy, as very few have appeared in any popular books.

Among the living mollusks pictured (just to whet your appetite) are Morum oniscus, Cymatium pileare, C. caribbaeum, Ficus howelli, Bursa thomae, Scaphella junonia, Lyria cordis, Voluta musica, Teralatirus ernesti, Conus granulatus, C. cedonulli, Cypraea spurca acicularis, ten species of marginellas, Natica canrena, Xenophora conchyliophora, Turbo cailleti, and Vexillum histrio. These photos alone make this book a must for all collectors interested in western Atlantic marine mollusks. We can give the authors a resounding vote of thanks for publishing such a fine addition to the literature on western Atlantic marine mollusks.

Walter E. Sage

Additions to the Panamic Province Bivalve (Mollusca) Literature - 1971 to 1990 by Carol Skoglund. 1991. Supplement 2 (1990) to Volume 22, The Festivus, pp. v + 74, 8½" x 11" softcover format. $10.00 plus postage. Send orders to The San Diego Shell Club, 3883 Mt. Blackburn Avenue, San Diego, CA 92111.

Carol Skoglund, one of the most knowledgeable collectors specializing in the mollusks of the Panamic faunal province, has earlier provided similar updates to Polyplacophora and Opisthobranchia. She now shares with us the results of her years of compiling the numerous literature citations on Panamic bivalves that have appeared since Keen's monumental 1971 treatise Sea Shells of Tropical West America. As stated in the opening paragraph, "The purpose of this paper is to draw together as manybivalve citations as possible and tie them to the species level so that each reader can make his/her own final judgments." The compiler has critically reviewed each citation, consulted with specialists as necessary, and given us a work that ably supplements Keen's 1971 volume.

The paper begins with a 5-page table of contents listing the supraspecific taxa and the page on which the treatment of each genus begins. The numbers from Keen's 1971 book have been retained, but will be out of order in cases where a new arrangement has been proposed in the literature. Only species with changes since 1971 have been included, and species are listed alphabetically within a genus. Taxa that have been revised since 1971 are in bold type, and the synonymy is as listed by the revisers. Where differences of opinion exist, both versions are listed in the order in which they were published.

The bulk of this paper, some 55 pages, is devoted to the systematic classification, which certainly appears to be excellently done and eminently usable. The list of literature consulted covers seven pages, and the final 11 pages are an index to the scientific names from subspecies to subclass. The reader is therefore afforded every opportunity to become familiar with recent changes in the bivalves of the Panamic province and to learn the latest in bivalve systematics. This inexpensive work is destined to be of first importance to collectors and professional malacologists alike.

Walter E. Sage

CROWN POINT CLUB DISBANDS

We have received the following communication: "Members of the Crown Point Shell Collectors' Study Group regret to announce their decision to disband their organization. The group met in Crown Point, Indiana for twenty years, enjoying the shells, dealers, shell shows, and fellow collectors encountered along the way. Many of the members will be active in other clubs, and look forward to seeing all their shelling friends at future shows and conventions."

NEW YORK SHELL CLUB PINS AVAILABLE

We have received a new supply of New York Shell Club pins. Because inflation has caught up with us, the new price is $3.75 each, when purchased by mail; $3.50 if bought at a NYSC meeting. The cost of pins may be included in your dues check. Please contact anyone you think may want one of our pins and have them contact NYSC Treasurer Theta Lourbacos, 66 W. 94th Street, #20C, New York, NY 10025.

ZEBRA MUSSEL - MOVING DOWN THE HUDSON, AND ITS "PROGRESS ELSEWHERE"

[Much has appeared in print recently about the introduced European freshwater mussel, Dreissena polymorpha. We here provide a sampling of these data].

[from COASTLINES, publication of New York Sea Grant Institute]

"NO DOUBT NOW! Zebra Mussels Confirmed in the Hudson River"

As COASTLINES goes to press, New York Sea Grant extension specialists have confirmed a sighting of zebra mussels in the Hudson River near the town of Catskill, New York, approximately 25 miles south of Albany.

The sighting was verified through microscopic examination by Dr. James Carlton, director of the Maritime Studies Program of Williams College, Mystic Seaport, CT and Dr. Edward Mills, a Cornell fisheries researcher, as well as Sea Grant Extension Specialists Dave Mac Neill and Charles O'Neill, both located at SUNY College at Brockport.

According to the investigators, there is no doubt that this is the first fully confirmed and verified sighting of zebra mussels in the Hudson River, and the first United States sighting of the mussel outside the Great Lakes drainage basin. The mussels were found on freshwater clam shells, rocks and driftwood in the vicinity of the Rip Van Winkle Bridge near the town of Catskill.

According to O'Neill, the Hudson River location where the zebra mussels were found is considered completely freshwater, making it unlikely that these could be the look-alike dark false mussels that were discovered early last winter in the brackish waters of the lower Hudson.

Researchers believe that the mussel threatens to cause severe economic and ecological damage throughout North American surface waters, affecting utility and industrial facilities, public water supplies, sportfishing, tourism, boating and recreation, with projected costs to the Great Lakes alone running into the hundreds of millions of dollars.

Since the zebra mussel was first discovered in June 1988, carried to the Great Lakes in the freshwater ballast of international commercial ships, it has spread rapidly into and throughout Lake Erie, becoming one of the dominant organisms in the western basin of Lake Erie, the western reaches of the Erie Canal, and the locks of the St. Lawrence Seaway in Massena, NY. It has also been found in Oneida Lake, the largest inland lake to report zebra mussels thus far.

Because the mussels are able to attach themselves to any hard surface, they are easily transported on boat hulls and waterborne debris. In the juvenile form, larval mussels can be carried by birds and animals, engine intakes, live wells, bait buckets or bilges filled with sebra-mussel-infested water.

Zebra mussels also have the ability to reproduce in large numbers - each female can produce over 40,000 eggs per season, creating reef-like colonies of more than 700,000 per square meter. The mussels tend to congregate around the intake pipes of utility and water treatment plants and in other areas of flowing water, where they can cause considerable damage.

According to O'Neill, with the mussel now in the Hudson and poised to enter the Mississippi River drainage system south of Chicago, the "genie is out of the bottle".

While zebra mussels could impact inland waterways throughout most of North America, an immediate threat for downstate New York is the effect zebra mussels could have on the public water supply system serving some 10 million people. Without sufficient funding for monitoring and for studying control measures, scientists say they can only speculate on what might happen.

In the meantime, to find out what we do know about zebra mussels, contact Susan Grace Moore at New York Sea Grant's Zebra Mussel Information Clearinghouse, 250 Hartwell Hall, SUNY College at Brockport, Brockport, NY 14420-2928.

[Also from the New York Sea Grant Institute's COASTLINES is the following:]

New York Sea Grant Fighting Zebra Mussels With Information:

"New York Sea Grant has produced a new zebra mussel booklet with a wallet-sized peel-off "Identa-card," and a "how to" video designed to help boaters and marina operators control the mussel's infestation and spread during the 1991 boating season.

The brochure, Zebra Mussels: A 1991 Great Lakes Overview, features a full color, peel-off "Zebra Mussel Watch Identa-card" on the front cover. The card will assist boaters, fishermen, harbormasters, government officials and the interested public in identifying the zebra mussel. The eighteen page booklet provides an overview of the mussel's life history, a map showing its spread, and the current methods of control being used by industry, small businesses and individuals.

The 13-minute video, Protecting Your Boat from Zebra Mussels, provides detailed information to boat owners and marina operators on how to protect boat hulls and engine intakes from the potential impact of zebra mussels. Ways to slow the spread of zebra mussels into uninfested waterways are also discussed.

'As the zebra mussels continue to spread, boaters need to consider ways to protect their investment from the damage the mussels can cause,' explains David White, New York Sea Grant's Great Lakes extension program coordinator. 'This videotape provides an overview of the various ways boat owners can protect the underwater parts of their vessels and enjoy a mussel-free season.'

Because the estimated cost of control and removal of zebra mussels has rapidly mounted, reaching hundreds of millions of dollars annually throughout the Great Lakes region, Sea Grant has sought to demonstrate the lowest-cost, easiest-to-follow methods that small businesses, individuals and boaters can use to deal with mussel colonization. through these efforts, it is hoped that tourism, boating, sportfishing, and other industries will be able to effectivel confront the mussel problem and minimize the economic harm mussels may cause to the region.

Individual copies of the Zebra Mussel Watch Identa-card and the booklet Zebra Mussels: A 1991 Great Lakes Overview are free. Multiple copies are $.15 each. Multiple copies of just the Zebra Mussel Watch Identa-card are $.05 each.

The how-to video, Protecting Your Boat from Zebra Mussels can be purchased in VHS format for $10 per copy. It is available on loan from Cornell Cooperative Extension offices and public library systems in the Great Lakes counties, some marinas, and the New York Sea Grant office in Oswego.

To order the brochure, identa-card or videotape, or for additional information please write to: New York Sea Grant Communications, Swetman Hall, SUNY College at Oswego, Oswego, NY 13126-3599.

[The May-June 1991 issue of the Crown Point club's TIDE-INGS has the following information on the zebra mussel:]

The extraordinary ability of zebra mussels to filter water may increase exposure risk of humans and wildlife to organic pollutants (PCBs and PAHs). Zebra mussels filter up to one liter of water per day feeding on phytoplankton. An "efficient" native feeder on Lake Erie filters only up to 6.5 milliliters per day or 165 times less. Early studies have shown that the mussels can rapidly accumulate organic pollutants within their tissues to levels over 300,000 times greater than concentrations in the environment. These pollutants are persistent and can be passed up the food chain. Any fish or waterfowl consuming zebra mussels will also accumulate these organic pollutants. Human consumption of fish and waterfowl from these areas would also have an increase in exposure to these same pollutants. The pollutant transfer up the food chain is currently under study.

In the 1980s the diving duck population around Lake Erie marshes was low. These populations have exploded according to personal observations of Alan Wormington of the Ontario Ministry of Natural Resource's Lake Erie Fisheries Station. In 1988 about 40 to 60 greater and lesser scaups were spotted in a day. In 1989 and 1990 the number increased to between 700 and 800 a day. On one day 13,500 were spotted on the east shore of Point Pelee (mostly lesser scaups).

The theory is that the number of ducks is increasing and staying longer because of the zebra mussels, as these ducks that dive below the water for food can consume the zebra mussels.

According to information from the 1980s about four million diving ducks annually migrate south into the United States east of the Rockies. Of these more than 60 percent are scaups (mostly lesser scaups), 20 percent are redheads, 7 percent are canvasbacks and another 7 percent are ring-necked ducks. Three migration corridors cross the Great Lakes, including the marshes of Lake Erie: the Southern Michigan Corridor, the Chesapeake Bay Corridor, and the Central Ohio Corridor.

Zebra mussels are capable of attaching to a variety of surfaces including other organisms that live in lake sediments. These surfaces would naturally include the shells of native freshwater unionid clams. In a series of experiments conducted last summer, female Lampsilis radiata (the fat Mucket) were found to suffer high mortality when encrusted with zebra mussels. This was not the case for male Lampsilis nor for either sex of another species Amblema plicata (Three-ridge Mussel). In a survey conducted throughout the Western basin, species similar to Lampsilis appear to have suffered greater mortality since the arrival of the zebra mussel than species related to Amblema. In other word, some species of unionids appear to be more severely affected by the zebra mussels than other native mussels.

We will be looking for additional information on the zebra mussel and keep you in touch with the latest developments. Please let Walter Sage know of anything you learn, especially about its "march down the Hudson River".

ANOTHER DANGER TO OUR NATIVE UNIONID CLAMS

In addition to the zebra mussels and industrial pollution, our native unionid clams have proven to be a most suitable source for the nucleus to be inserted in freshwater pearl oysters for the formation of cultured pearls. We have seen a newspaper article from last December's St. Louis Post Dispatch that records the arrest of four "mussel men" from Hannibal, Missouri for illegally harvesting 3,000 to 6,000 pounds of mussels from the Meramec River. The men did not consider the mussels to be wildlife, and were just interested in taking the shells to factories in various states where they would get $1 a pound, while the factories would then sell the shells to Japanese contacts, for $4 a pound. The illegally harvested specimens were returned to the riverbed, and we can only hope that they will be able to live unmolested by illegal harvesting or threat from zebra mussels.

USING OYSTERS TO CLEAR THE DRAINS [Sea Frontiers, June 1991]

It seems that special molecules produced by the eastern oyster [Crassostrea virginica] may help industries unclog pipes, circumventing the use of expensive, toxic, and nonbiodegradeable chemicals. Researchers who noticed that eastern oysters produce proteins that inhibit crystallization in one protein form, while another form of the protein promotes crystal growth. After the proteins were isolated, the researchers created synthetic analogs. These analogs are inexpensive, non-toxic, and biodegradable. It is hoped that these synthetic proteins may be able to be used to replace crystal-inhibiting checmicals which are used by the thou-sands of tons annually to reduce mineral crystallization in water pipes.

It's interesting to remember that bivalves (does the zebra mussel come to mind?) have long been regarded as a nuisance because they often attach themselves to the interior of industrial pipes. Might we now have a "mollusk cure" for zebra mussels?

REVIEW: Shells - Classic Natural History Prints

by S. Peter Dance and David Heppell. 1991. Studio Editions, London. 10½" x 14". 128 pp., 60 color plates. Available from American Malacologists, P. O. Box 1192, Burlington, MA 01803. $35.00.

This book is more than just a collection of large beautiful shell prints selected from the cream of three centuries of natural history publishing. It is an illustrated history of conchology, with detailed accounts of the collectors and artists behind each print. Only in a great center of learning, such as the British Museum or the Smithsonian, would one find a multimillion dollar library containing these illustrations.

Armchair conchologists and lovers of antique books will enjoy and treasure full-color prints of shells from the first shell book issued with hand-colored plates by Nicholas Geve in 1755; from Seba (1758); Regenfus(1758); Knorr (1775); Born (1780); Martini and Chemnitz (1780); Thomas martyn (1789); the bivalve anatomy of Poli (1795); and from many other classics.

From down through the ages, Dance and Heppell give examples and recount an intimate history of such famous works as the huge Glory-of-the-Seas paintings from Sowerby's Tankerville catalogue (1825); the jewel-studded Umbrella Squid from Orbigny (1835); a dozen variations of the West Indian Sunrise Tellin from Chenu (1843); living Mexican Euglandina snails from Fischer and Crosse (1870); photographs of 30 Liguus tree snails from Pilsbry's rare 1912 monograph; and an example from Hirase's extraordinary "accordion" book of 1000 hand-printed Japanese woodcuts.

R. Tucker Abbott

PUBLISHER'S ANNOUNCEMENTS:

We are pleased to announce the appearance of the new "Seashell Treasures Books" catalogue. This catalogue (first part only) offers you about 653 titles of antiquarian and new books and 69 series of periodicals on malacology. Later this year the second part of this catalogues will be sent to those interested. For a free copy of this catalogue, please contact: Dr. W. Backhuys, Seashell Treasures Books, Warmonderweg 80, 2341 KZ Oegstgeest, The Netherlands.
(A copy of this catalogue will be available for inspection at the September meeting of both the New York and Long Island clubs.)

Coming soon in 1992, exclusive distribution in U.S. - Guide Book to Pecten Shells by A. Rombouts. edited by Dr. H. E. Coomans, H. H. Dijkstra and R. G. Moolenbeek here at last is an extensive guide to the Pectinidae of the world. Hundreds of valid species in full color photos by P. L. van Pel. 184 pp., 29 color plates. $40.00. Order now from American Malacologists, Inc., P. O. Box 1192, Burlington, MA 01803, or call (508) 686-1799. New Fall 1991 catalog available if you ask.

[Editorial Note - There have been so many new books lately that there has been no time to review them all. These titles include Mitridae of the World, part 2, by Walter O. Cernohorsky, 168 pp., 155 plates, 4 in color, $35.00; Seashells of the Northern Hemisphere by R. Tucker Abbott, expanded, enlarged guide, 191 pp., 700 color photos, $24.95; European Seashells, Volume 1, by Guido T. Poppe & Yoshiro Goto, 352 pp., 40 color plates, $45.00 (approx.)[mainly gastropods]; Antarctic Mollusca by R. K. Dell, 311 pp., 482 b/w photos, $60.00; World Seashells of Rarity and Beauty, revised and enlraged edition [Kawamura Collection], 206 pp., 158 color plates, no price indicated; A Systematic Classification of the Gastropod Family Conidae at the Generic Level, by A. J. da Motta, 48 pp., over 80 color photos, $35.00; New Gastropods from the Plio-Pleistocene of Southwestern Florida and the Everglades Basin by Edward J. Petuch, 76 new species, $12.00. Many of these books and many others are available from Bob & Dottie Janowsky, Mal de Mer Enterprises, P. O. Box 482, West Hempstead, NY 11552.

A report on the highly successful Long Island COA Convention will be printed in the December NYSC NOTES - see the September AMERICAN CONCHOLOGIST for details.

SHELLING IN OMAN

Dr. Donald T. Bosch

The topography of Oman is virtually ideal for the development and survival of molluscs. Beginning at the Straits of Hormoz (mouth of the Arabian Gulf) the sea meets the land in massive rocky outcroppings which gradually give way toward the southeast to the 125-mile-long Batina Coast, a sandy stretch interspersed with areas of rock and coral. The Batina Coast is the home of hundreds of molluscan species: numerous bivalves, tuns, strombs, olives, etc. At Muscat the Batina ends, and enormous rock cliffs plunge almost vertically into the deep surrounding ocean. The coast from Muscat southwards is a series of lovely sand beaches broken into coves by masses of rock and coral. This type of substrate, in a tropical latitude, clearly suits the molluscs "just fine". Oman has about 1000 miles of coastline to support its molluscan population.

Then there are the islands, most of them uninhabited, which lie fairly close to the mainland. The most significant of the larger islands is Masirah, which is about 50 miles long and 10 miles wide, lying parallel to the south coast about 20 miles from the mainland. Its unique situation in juxtaposition to the mainland means that it has two totally different types of seashore environment. The southeast shoreline sustains all the fury of the Indian Ocean, with smashing waves and frequent rough weather; The northwest, on the other hand, snuggles up to the mainland, protected from big waves and high winds. Accordingly the northwest shoreline consists of both muddy and clean sand extending outwards for several miles at low tide. The muddier areas support various types of seaweed. This environment is the home of such species as ***Acteon eloiseae, Cymatium boschi, Cypraea teulerei*** and ***Ancilla boschi,*** species whose habitats are confined to this unusual island.

Off the southern coast of Oman, an "upwelling" of deep water brings minerals and nutrients to the surface, thus enhancing the molluscan potential in the southern privince of Salalah, the Kuria Muria Islands, and Masirah Island.

History and politics play an important role in Oman's molluscan story. For centuries the area was "off the beaten track" for world commerce. True, frankincense was a viable export, but the harsh summer weather and the small population meant little contact with the outside world. Thus, while molluscs were being studied with enthusiasm in Europe, America, and elsewhere, Oman's molluscan fauna remained a mystery. A break in the isolation of the area occurred quite by accident at the end of the 19th century when Captain Frederick W. Townsend lifted the telegraph cable from Muscat to Karachi, a cable which had been lying on the ocean's floor for years. The molluscan species clinging to the cable were from deep water, and most of them were very small; but the end result was the identification of about 600 new species mostly described by the English conchologists, J. C. Melvill and R. Standen between 1893 and 1915. It is of importance to note that most of these species have not been found again and probably never will unless very deep dredging is done.

The next serious investigation of Oman's molluscs began with the arrival of Dr. & Mrs. Donald Bosch in 1954. Aided by the incredible patience of the late William E. Old of the New York Museum of Natural History, they began sorting and identifying the large volume of material. Bill Old deserves full credit for stimulating Eloise and Don Bosch to make conchology their hobby, a hobby which eventually resulted in the publication of two books dealing with the seashells of the southern Arabian coastline.

3

To date the Bosch family have discovered 12 new species of molluscs which are herewith listed:

Cymatium boschi Abbott & Lewis, 1970
Conus boschi Clover, 1972
Acteon eloiseae Abbott, 1973
Marginella pergrandis Clover, 1973
Ancilla boschi Kilburn, 1980
Favartia paulboschi Smythe & Houart, 1984
Latirus bonnieae Smythe, 1985
Bursa davidboschi Beu, 1986
Lyria leslieboschae Emerson & Sage, 1986
Hypermastus auritae Waren, 1989
Hypermastus boschorum Waren, 1989
Conus stocki Coomans & Moolenbeek, 1990

It is significant to note that all of these species live on Masirah Island, and most of them have habitats limited to Masirah. The fact that one family has discovered 12 new species indicates the vast amount of information waiting to be disclosed.

Our collecting methods include beach combing, beach digging after storms, overturning of rocks at low tide, snorkeling to depths of about 20 feet, hand dredging to depths of about 5 feet at low tide, and boat dredging to depths of about 100 feet. We have not utilized scuba equipment. As might be anticipated, most of the species are found in the intertidal zone and to depths of about 15 feet at low tide.

Oman is home to a wide variety of molluscs. The combination of long sandy beaches, massive rocky outcroppings and coral beds create a biological community with extreme variability in food requirements. The filter-feeders have miles of clean sand, and the algae munchers have miles of rocks. Species such as Cypraea pulchra find branched coral to suit their tastes. In short, the unlimited availability of necessary nutrients make the mollusc's life simple and free of apprehension. What does worry the molluscs is an oil spill. Far more damage has been done to molluscan life in this part of the world by oil spills than by any other factor. Sadly, the captains of oil tankers sometimes illegally rinse our their storage tanks off the coast of Oman creating oil slicks which wash up on the beaches several days later.

Among the more exciting moments of our shelling hobby were the rediscovery of *Cymatium ranzanii* and its habitat, the discovery of *Cypraea teulerei's* home base, the finding of live specimens of *Fusinus gallagheri, Marginella pergrandis, Persicula masirana, Bursa davidboschi, Acteon eloiseae* and *Favartia paulboschi.* An as yet unrealized dream is the finding of live *Lyria leslieboschi* . . . . perhaps this will be the year to find it. We hope!

The government of Oman is very sensitive to the preservation of its environment and has issued an order prohibiting the collection of living molluscs unless a license is first obtained. This regulation is not intended to inhibit the scientific study of molluscs but rather to prevent indiscriminate collecting.

Dr. Donald T. Bosch Presents his book "Sea Shells of Oman" to His Majesty Sultan Qaboos bin Said while Mrs. Bosch looks on

(Reprinted from The Junonia, The Sanibel-Captiva Shell, Club, July 1991)

THE "RIOSI" FAMILY by E. C. Rios, Rio Grande Oceanographic Museum Brasil

Some researchers and friends have kindly named after me malacological taxa as follows: _Adelomelon riosi_ (1964), subgenus _Riosatella_ (1973), _Typhina riosi_ (1980), _Tritonia eriosi_ (1983), _Terebra riosi_ (1985), and _Conus riosi_ (1986).

1. _Adelomelon riosi_ Clench & Turner, 1964. In August of 1963, Leopoldino Pontes, a fisherman who worked on the fishing boat "Pescal 2", brought me 10 specimens of a seashell collected off Mar del Plata (Argentina) at a depth of 172 meters. I was not able to identify it. I only knew it was a Volutidae. I decided to send a picture of my shell to Drs. William J. Clench and Ruth Turner of Harvard University. After two weeks Dr. Clench told me it was a new species to science and asked if I could send him the soft parts. Four months later, imagine my surprise when I opened the "Johnsonia" and discovered the new species described after me and its photograph covering a full page. (_Johnsonia_ 4(43):129-180).

2. Subgenus _Riosatella_ H. E. Vokes, 1973. In June of 1971, Drs. Emily and Harold Vokes taught a malacological course (at post graduate level) at the Rio Grande do Sul University, Porto Alegre City. I had the opportunity to attend this course myself. In November of the same year, they visited my Oceanographic Museum in Rio Grande where they revised my Muricidae and Pelecypoda collections. Harold found an undescribed species of _Crassatella_, studied the species in his laboratory at Tulane University and named the subgenus _Crassatella_ (_Riosatella_) _riograndensis_ in my honor (_Iheringia_ 43:48-59, 1 pl).

3. _Typhina riosi_ Bertsch & D'Attilio, 1980. In my second book, "Brazilian Marine Mollusks Iconography," I have listed _Typhis longirostris_ Dall, 1888, collected off Tramandai by the vessel "W. Besnard" in 280 meters, but I wasn't sure about this identification. In 1978 I sent some specimens to my teacher Emily Vokes for study. She sent my specimens to Dr. Hans Bertsch and Anthony D'Attilio, from the San Diego Natural History Museum. After studying my shells, they concluded that they were a taxon new to science. (_Venus_ 39(3):131-138).

4. _Tritonia eriosi_ Ev. Marcus, 1983. In November of 1982, the research vessel "Atlantico Sul" from Rio Grande University collected nice specimens of an opisthobranch mollusk in 58 meters off Chui, RS. Comparing them with specimens in Rio Grande Oceanographic Museum, I concluded the species belonged to the order Dendronotacea. I was not sure about the genus, since I am more familiar with prosobranchs. So I sent my specimens (preserved in alcohol) to Dr. Eveline Marcus of Sao Paulo University. After a month she called me and said "The genus of your mollusk is _Tritonia_. I will describe this new species after you under the name _eriosi_. (_Bul. Zool. S. Paulo_ 6:177-214).

5. _Terebra riosi_ Bratcher & Cernohorsky, 1985. In July of 1984, my friend Luis Roberto Tostes invited me to collect shells in Cabo Frio Beaches, Rio de Janeiro State. We had the opportunity to collect many species, intertidally, including an unknown Terebridae. This species was identified by Tostes as _Terebra doellojuradoi_. I did not agree with his identification and decided to send some specimens to Twila Bratcher who, with Walter Cernohorsky, was preparing a revision of the genus _Terebra_ of the world. The next year, after studying my shell, they named it _Terebra riosi_. (_Nautilus_ 99(4):91-94).

6. _Conus riosi_ Petuch, 1986. In July of 1985, I received a visit from Dr. George Davis of the Philadelphia Academy of Sciences and Dr. Edward Petuch of the University of Miami. Dr. Davis was interested in the genus _Potamolithus_ and we made a trip to Chui Creek looking for specimens. While he examined his finds, I took Dr. Petuch to see our specimens of Cypraeidae, Olividae and Conidae. He told me that he was describing a new species of _Conus_ from Rio de Janeiro. Looking at my cone collection, he found specimens of the new species he was naming and asked permission to take them back to his university for study. Two months later, I received a letter from Dr. Petuch with the description of _Conus riosi_. It is nice to have my name after a _Conus_ species. (_Proc. Biol. Soc. Wash._ 92(3):510-526).

(Reprinted from _The Junonia_, October 1990)

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
283 W. 11th St.
New York, NY 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, NY 11223
718-449-0244

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family - with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas paid in U.S. currency.

The Treasurer - Membership Chairman should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1991 - 1992

Please consult the current edition of the NOTES for confirmation of meeting dates and places.

1991	Sept. 8	Rm. 319	1992	Feb. 9	Rm. 319
	Oct. 6	Field trip		March 8	Rm. 319
	Nov. 10	Rm. 319		April 12	Social/Auction
	Dec. 8	Rm. 319		May 10	Rm. 319
1992	Jan. 12	Rm. 319		June 14	Rm. 319

Meetings are held the second Sunday of each month, September to June, except that the October meeting will be a field trip on the first Sunday in October.

Except as noted, meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History (unless advised). Present your membership card for admission to the museum for the meetings.

PROGRAM SCHEDULE

SUNDAY, DECEMBER 8, 1991, at 2:00 p.m.

Shelling in Washington State - Richard J. Kelly

SUNDAY, JANUARY 12, 1991, at 2:00 p.m.

Oceanography - Hank Foglino

SUNDAY, FEBRUARY 8, 1991, at 2:00 p.m.

Rare and Historical Shell Books - Florence Fearington

CONTENTS

		Page
Highlights of Recent Meetings	Milton Werner	2, 3
Book Reviews - A Systematic Classification of the Gastropod Family Conidae at the Generic Level, by A. J. da Motta	Walter Sage	4, 5
The Mitridae of the World, Part 2 by Walter O. Cernohorsky	Walter Sage	5
A Note on *Velutina prolongata* Carpenter, 1864	Roland Anderson	6, 7
1992 Winter and Spring Shell Shows and Other Events	Donald Dan	7, 8
Mollusks Found in Ancient Graves in Egypt	Sam D. Freed	9, 10
Cowrie Coins - Collecting Seashells by the Seashore for use as Legal Tender	Jed Stevenson	10, 11
Zebra Mussels Invade Susquehanna	Tom Apple	11
The Shell Collection of Fred R. Cannon, Jr.	Fred R. Cannon, Jr.	12, 13
Let's Go Shelling! Or Shall We?	R. Tucker Abbott	14-17

As NYSC President Al Scarpetti mentioned at the November meeting, we need to think ahead NOW to the April 1992 social and auction meeting. As you know, we benefited for the past three auctions from the donation of shells from the estate of the late Veronica P. Johns. This material was the last of the stock from Veronica's Seashells Unlimited, which she ran for many years on Third Avenue at 39th Street.

We need specimen shells for the bid auction, items for a raffle and/or door prizes, and shells for our bargain table. We urge all members to be thinking about making a donation to this club event, and the proceeds allow us to continue the monthly programs we all look forward to, and basically to survive as a club. It's not too early to contact Al Scarpetti with your suggestions and to let us know you will be helping out at this event.

HIGHLIGHTS OF RECENT MEETINGS

SEPTEMBER 8, 1991: Treasurer Theta Lourbacos, after her regular report, added a description of the considerable cost of maintaining a checking account and of her search for a bank or a type of account that would be less expensive. We are paying about $20 per month, plus a charge for every check written or deposited, in bank fees. Theta has found, at Manufacturer's Hanover, a type of savings account that seems to meet our needs at lower cost, and plans to make the switch to MH in the near future.

President Al Scarpetti noted the addition of four new members - Kathryn Simms, Linda Roach, Fay Washington, and gary Bernstein.

Al then announced the final plans for the bus trip to the Delaware Museum of Natural History. A 24-seat bus will pick up passengers at 8:00 a.m. at St. John's University in Queens, and at 9:00 a.m. at Bryant Park in Manhattan. Al also read a list of coming meeting programs.

The door prizes were a Mitra gloriola, won by Dan Gelerinter, Conus gubernator, won by Dr. Walter Jacobs, and Voluta imperialis, won by Larry Potter.

The speaker was Dr. Jon Greenlaw of the Long Island Shell Club. Jon is a biologist and naturalist, and he reported on his shelling activities at St. Lucia, one of the larger of the Windward Islands, in the southern Caribbean. He mentioned briefly its varied bird fauna, and noted that it is not rich in Land Snails. There is some difference between the southern and northern parts of the island in the marine species to be found, and in their abundance. On the east coast the shelling is not very good, but the west is sheltered by reefs. The reefs are accessible only by diving, and the steep, rocky shores can be approached only by boat. The roads, he warned, are terrible everywhere. Jon's slide photos included some scenes, many shells, and underwater shots. He described finding about 15 species in the discard heap that an octopus had amassed outside its hidey-hole, and mentioned collecting a Lyria guildingi, a small, rare member of the family Volutidae, live, at 30 feet. His haul was also notable for a number of Conus cedonulli, taken both live and dead.

OCTOBER 6, 1991: The 400th meeting of the New York Shell Club took the form of a trip to the Delaware Museum of Natural History, near Wilmington. A chartered bus carried a group of 22, made up of members of the New York and Long Island Shell Clubs, and guests. (Yes, Nick Katsaras made this 400th!)

On arrival, the first item of unfinished business was lunch, at the cafeteria that serves visitors at Winterthur, a former du Pont estate now a museum and gardens just up Route 52 from the natural history museum. When lunch became finished business, the primary objective was the short run down the road to John duPont's fine display of small mammals, birds and shells. As arranged, this special tour included the extensive area abovestairs where dauting rows of cabinets hold the molluscan study collection.

Betty Jean Piech and Al Chadwick, who are regular volunteers in the curating of the collection, gave up a good part of their Sunday to guide our group among the work stations, outlining the institution's routines and methods, and providing peeks into drawers of particularly interesting specimens. Several of Neil Hepler's portable educational displays are stored here, accessible to viewing, awaiting the call to appear at malacological conventions and shows.

The consensus was that it was a good day all around, and a most memorable meeting, despite one complaint that the arrangements hadn't specified a glass-bottomed bus!

NOVEMBER 10, 1991:President Al Scarpetti mentioned that we need to begin work on our April, 1992 annual social and auction meeting. Letters asking for donations of shells for the auction should be sent to dealers and other potential donors at least three months before the date. Al further mentioned that Sol Weiss had offered to provide shells for the auction and Al recommended that we reconsider this offer.

A letter was read from Ann Stoddard of Boothbay, Maine, who was offering for sale shells from her late husband's collection. Anyone interested was invited to write to Mrs. Stoddard and inquire about the specimens available.

Photos taken by Jordan Star at our October 6 tour of the Delaware Museum were on exhibit. Al thanked Jordan for sharing his photos with us.

Nick Katsaras told us about the Philadelphia Shell Show, which he, Rae Varga, and Walter Sage attended yesterday. Nick mentioned the excellent exhibits, visiting with Dr. Meyer Naide, and going around to the various dealer's tables. Nick was especially entranced by a specimen of *Conus tisii* Lan, 1978, approximately 5½" in length, available from Donald Dan for $7,000. Walter remarked that Don Dan had on hand a number of rare specimens newly available from Russian trawlers, including some as yet unnamed cones.

The door prizes were *Conus inscriptus*, won by Phyllis Martignoni; *Pugilina morio*, won by Sylvia Springer; and *Turbo fluctuosus*, by Romuald Czepulkowski.

The speaker was Mel Springer, assisted by his wife Sylvia, who spoke on their several week trip to Fiji and Australia. Their first stop was to Whites Point, near San Pedro, California, where they collected limpets and two species of live land snails, *Helix aspersa* and *Otala lactea*, European "immigrants."

After a brief stop in Hawaii, they arrived in Fiji, where they spent eight days on Malololailai, a small island off the main island of Viti Levu. They occupied a bungalow, which had kitchen facilities, so they could boil their shells in preparation for mailing the cleaned specimens back home.

Mel remarked on the varied and colorful marine life and showed slides of many of the species of mollusks they collected in shallow water and as the tide was receding. Among these species were *Conus ebraeus*, *C. flavidus*, *C. eburneus*, olives, *Cypraea vitellus*, *C. lynx*, nerites, and moon snails. They also went to Honeymoon Island, another Fijian paradise, where they collected a large number of shells, including *Lambis*, *Strombus*, *Spondylus*, and more cones.

They continued on to Sydney, Australia, where they were "typical tourists", as they rested in preparation for further collecting along the eastern Australian coast. They visited Hamilton Island, the southernmost point on the Great Barrier Reef, Cairns, and shelled northward to Port Douglas. They especially mentioned Seven Mile Beach, near Port Douglas, where they added to their already species-rich inventory - *Telescopium*, olives, cones, terebras, pen shells, *Murex*, *Strombus*, and *Lambis lambis*. They ended their collecting with a stop at Green Island, where they collected *Conus arenatus*, *C. quercinus*, and their only volute.

We would like to share with you here some of the answers received to the question: What was the particular occasion that initiated your serious involvement with shells?

Dorothy & George Raeihle: When guests noticed the shells and other interesting examples of marine life on display on our bookcases, and asked questions that we couldn't answer. The incident made us take a closer look and impelled us to research. (We never did get to playing bridge that evening.)

Walter Sage: My 5th grade teacher gave me a *Lambis lambis* and then I saw some shells for sale and then bought shells from Lorna Melvin in Boston.

REVIEWS:

A Systematic Classification of the Gastropod Family Conidae at the Generic Level by A. J. da Motta. 1991. La Conchiglia, Rome. 48 pp., many color photos; text in English and French. $35 paper; $48 bound (plus postage).

The marine mollusk family Conidae has long been a favorite of shell collectors and scientists alike. Since the genus Conus was established by Linnaeus in 1758, there has been a continuing debate over the merits of recognizing the single genus or dividing that taxon into a "more natural" arrangement of several genera. Walls, in his 1979 revision of the species of Conidae, chose to use only the genus Conus. In the dozen years following publication of that book, nearly 250 new species and subspecies names have been intriduced into the literature. A. J. (Bob) da Motta, in the forefront of those describing new cone taxa, has now given us his ideas on the proper arrangement of species-level taxa within 8 genera and 68 subgenera.

Da Motta devotes several pages to the history of conid classification, stating that "a genus is a group of species holding several features in common." Touching on such features as radula, protoconch, and early whorl microsculpture, da Motta then comments that none of the various biological and morphological features can alone "accommodate the entire family simultaneously." He then states that an effective system of classification must link fossil and living species and that therefore "structural shapes of individual conid species as outlined in its profile" are the key element of a usable classification of the Conidae.

Body whorl contour is the structural aspect used by the author to recognize eight distinct genera. These genera, with respective type species and body whorl shape are: Conus marmoreus, obconic; Leptoconus amadis, turbinate; Dendroconus betulinus, turgid; Hermes nussatella, bulbous; Profundiconus profundorum, fusiform; Gastridium geographus, bulbous; Conasprella cancellata, pyriform; Cylinder textile, ovate. All of these basic shapes are illustrated, and for each recognized subgenus, an outline of the basic shape is provided. Several other factors determine placement of a subgenus within a genus - "some modification in height of spire; structure of shoulders; the sides; the size bracket and pattern or coloration." Further criteria for distinguishing subgenera are these: "any distinct group which is endemic to a particular zoogeographical area; monotypic singularity; any group of look-alike species already recognized as belonging to a self-evident complex; consistent and unique coloration and pattern only seen in one particular complex." Sizes are defined thus: amall, up to 30 mm; medium, up to 70 mm; large, over 70 mm.

The actual classification covers 26 pages, in which each of the 68 genus-level tava are treated in the following manner: author, date, and type species designation are provided; several lines of diagnosis are given; and a list of species-level names that conform to that diagnosis are included. A color photo of the type species and a contour outline to emphasize shell shape complete this treatment. The genus-level taxa are here summarized - Conus, with 16 subgenera, 9 new in this paper; Leptoconus, 13 subgenera, 8 new; Dendroconus, 17 subgenera, 8 new; Hermes, 9 subgenera, 3 new; Profundiconus, 4 subgenera, 1 new; Gastridium, 2 subgenera; Conasprella, 4 subgenera, 1 new; and Cylinder, 3 subgenera. Several species soon to be described are listed in the index.

Two indices, one giving genera, subgenera, an abbreviation, and thetype species; and the other a listing of some 1200 species-level cone names and the abbreviations by which these names may be located in the classification, complete this book. In the second index, species considered by the author to be valid are printed in bold type, so the reader can more easily tell the author's opinion of a particular name. Unfortunately, not every named taxon of Conidae is listed, so this feature is not as useful as it might have been.

This reviewer has a few final comments. There is no statement of the derivation of the names of the new subgenera. No fossil species are included here, so the reader can only speculate about fossil names. I find this book difficult to use, but this may be due in part to unfamiliarity with the work, the layout, and the new subgenus names. It is necessary to constantly flip back and forth in th book, and already the covers of my copy are coming loose. I have trouble accepting the above-stated subgenus criteria as being objective - they seem too easily open to individual interpretation. Lastly, but not least in importance, it seem too restrictive to rely only on shell shape as the determining factor for the proper classification of the Conidae. This classification can be another tool in understanding the Conidae, but much more should be considered before closing the door on the question of conid genera.

Walter E. Sage, AMNH

The Mitridae of the World. Part 2. The Subfamily Mitridae Concluded and Subfamilies Imbricariinae and Cylindromitrinae by Walter O. Cernohorsky. 1991. Monographs of Marine Mollusca, No. 4. 164 pp. 4 color, 155 b/w plates. $35.

In this continuation of his systematic review of the Mitridae initiated in 1976, Cernohorsky includes 42 fossil and 97 living species and subspecies of world-wide miters from the three subfamilies listed in the title of this paper. These subfamilies are distinguished by radular differences, as well as shape, sculpture, and ornamentation of the shell. In concluding his treatment of Mitrinae, the author covers seven living taxa of Mitra, nine of Nebularia, and one of Dibaphimitra. The genus Pleioptygma is removed from Mitridae and placed in its own family Pleioptygmatidae, in accord with recently published research.

The subfamily Imbricariinae is comprised of the following genera: Cancilla, 5 species; Ziba, 13 species; "Ziba", 16 species; Subcancilla, 1 species; Domiporta, 10 species; Neocancilla, 8 species; Scabricola, 10 species, and its subgenus Swainsonia, 6 species; and Imbricaria, 6 species. Finally, the 10 species of Pterygia included in the subfamily Cylindromitrinae are covered.

The treatment of each recognized taxon consists of scientific name with author and date of description; plate on which the taxon is illustrated; range, with a map; remarks, in which comparison is made with other species; habitat; description; measurements; synonymy; types and nomenclature; and locality records from museum and private collections. Junior synonyms are noted and the type specimens are illustrated wherever possible.

This monograph is a high quality presentation of the available data on the family Mitridae, and will prove of great use to professional and amateur malacologists. When used with Part 1, the student will have a comprehensive reference guide which should facilitate identification of miters, and make organization of a collection of Mitridae an easier task. It is hoped that someone will carry on Cernohorsky's work and provide the same treatment for the Costellariidae, so similar in some shell characters to Mitridae, but distinct in radular and anatomical characters. Cernohorsky can be congratulated on the completion of this excellent work on the Mitridae.

Walter E. Sage, AMNH

The September issue of AMERICAN CONCHOLOGIST, the quarterly publication of the Conchologists of America, contains an impressive 5-page article on this organization's annual convention, which was held this past July at the Huntington Hilton, Melville, Long Island, New York. Our New York Shell Club is a member club of COA, and several NYSC members worked on this convention. This issue of AMERICAN CONCHOLOGIST will be available at the December NYSC meeting.

Vol. XXIII(10): 1991 THE FESTIVUS Page 75

A NOTE ON *VELUTINA PROLONGATA* CARPENTER, 1864

ROLAND C. ANDERSON
The Seattle Aquarium, Pier 59, Seattle, Washington 98101

Earlier this year I had the pleasure of diving on the reefs of Palau and Yap with friends of mine from the Seattle and Vancouver Aquariums. Having had limited diving experience in the tropical Pacific, I was quite excited by the colors, the warmth, the water clarity, the wrecks, the sharks, the corals, and all the other tropical invertebrates I had only read about or seen in pictures. In fact, I was so excited I couldn't help signalling to some of my compatriots to look at vermetids, nudibranchs, cushion stars, zig-zag oysters, etc. My fellow divers, however, were not as excited as I about these great invertebrates, preferring instead to be impressed by sharks, turtles and barracudas. Ken Wong, my counterpart at the Vancouver Aquarium, accused me of calling him away from five white-tip sharks just to look at a "blob of mucus" (a beautiful *Chromodoris* nudibranch)! As the Puget Sound Biologist for the Aquarium, I can certainly appreciate sharks, but they hardly competed with "blobs of mucus" like *Fromia, Sepia,* and *Chromodoris.*

Since that time I have had my work cut out for me, introducing and educating these folks in the wonders of invertebrate blobs. Recently I was able to show Ken some blobs in colder waters, specimens of *Velutina prolongata* Carpenter, 1864, a snail that resembles a blob (Figure 1).

Velutina (family Velutinidae) has a rather unimposing shell with a fuzzy periostracum and no umbilicus or operculum. In the wild the shell of the animal is always covered with the mantle and the large fleshy foot, so that the animal resembles a small moon snail with its foot expanded or a "blob of mucus." It could easily be mistaken for a bubble-shelled opisthobranch; however, a closer inspection would reveal its prosobranch affinities.

I have only found this species in the deep cold waters of Cape Flattery at the northwest tip of Washington. Cape Flattery is arguably the wildest area on the west coast, dominated by hundred-foot vertical cliffs, solid rock sea stacks, caves, crevices, and house-size boulders. Wildlife includes resident gray whales, puffins (and their rookeries), eagles, and sea lions. Water conditions are dominated by swells coming in from the open ocean of the North Pacific. On a calm summer day, swells may only be running 6 to 8 feet high; 20 to 30 foot swells are common in the winter. Weather in the summer is dominated by fog, strong westerly winds, and occasional storms; winds have been clocked at 63 miles an hour in August at Tatoosh Island at the very tip of the Cape. The average summer high temperature is 55°F. Due to upwelling caused by long-shore winds in the summer, water temperatures commonly run 43°F in the summer. In spite of the weather, winds, swells, and water temperature, it is indubitably the best diving in Washington,

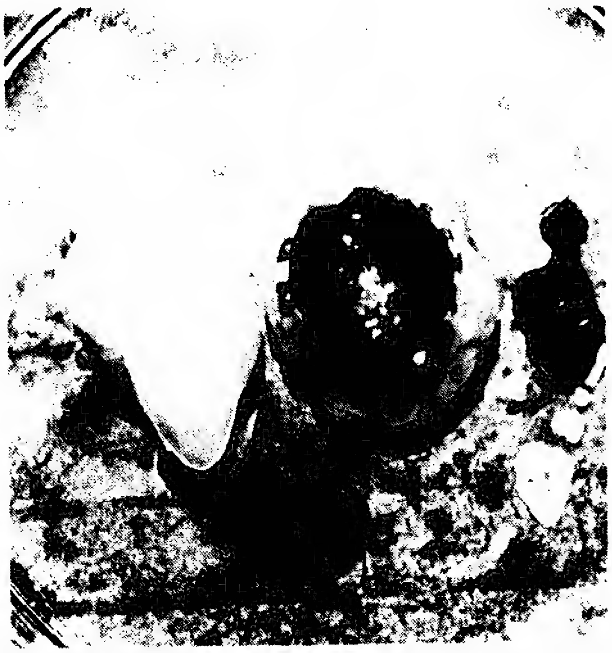


Figure 1. *Velutina prolongata* Carpenter, 1864, two specimens in a watch glass; one is upside-down.

and an area where the Seattle Aquarium collects unusual, large, and healthy fish and invertebrates, including *Velutina.*

I first found *Velutina* there three years ago, and collected some for the Aquarium. I enlisted the help of Elsie Marshall of the Burke Museum, Seattle, Washington, to identify them. They seemed to do well in my aquarium tanks, feeding on hydroids and compound ascidians. They transported well for the long trip back to Seattle, with the exception of producing vast quantities of mucus, rivaling (for their size) the famed slime star *Pteraster tesselatus* of our area in mucus production and certainly lending credence to their "blob" appellation.

The *Velutina* survive at least a year in my aquarium tanks. In spite of a slightly blobby appearance, they are attractive, having a bright orange line around the foot (Figure 2) and brown spots speckling the edge of the cream-colored mantle. In my tanks, part of the shell of the animal can be seen since the mantle is never quite as expanded as it is in the wild. This may be due to the different water conditions of Seattle--warmer and less saline than in the Cape Flattery area.

Leo Shaw of the Seattle Aquarium took the original color slides from which the black & white photos were made.

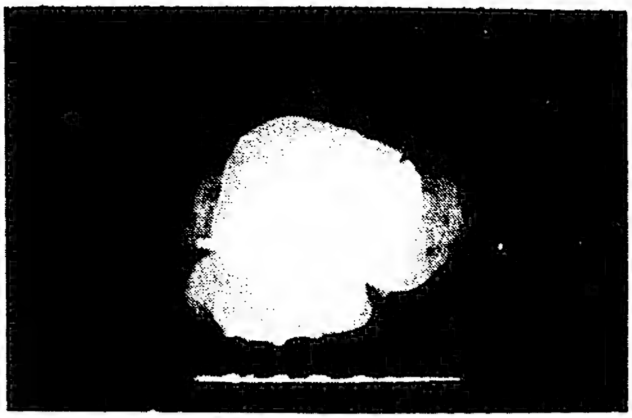


Figure 2. *Velutina prolongata* crawling on glass front of an Aquarium display tank. Note the bright orange line around the foot [at arrow].

reprinted from The Festivus 23(10), October, 1991 - San Diego Shell Club

---

1992 Winter & Spring Shell Shows and Other Events

compiled and provided by Donald Dan

A total of 14 shell shows have been slated during this period, 12 in the U.S. and 2 in Europe. The biennial St. Louis show will again be held in 1992. The Ft. Myers show will resume after two years' absence, returning to the old Exhibition Hall along the bank of the Caloosahatchee River. Absent during this season will be the Central Florida Shell Show and the Palm Beach Shell Show. Both shows are searching for more suitable locations.

Jan. 17-19 Greater Miami Shell Show, N. Miami, FL
Sandra Gayle Motes
7305 NW 59 Street
Tamarac, FL 33321 (305) 726-5190

Jan. 24-26 Astronaut Trail Shell Show, Melbourne, FL
Jim & Bobbi Cordy
385 Needle Blvd.
Merritt Island, FL 32953 (407) 452-5736

Jan. (TBA) 4th Paris International Shell Show, Vincennes, France
Association Francaise de Conchyliologie
1, impasse Guemenee Date to be announced
75004 Paris, France (1) 40-27-96-72

Jan. 31 - Feb. 2 Broward Shell Show, Pompano Beach, FL
Richard Sedlak, 4371 SW 11th Street
Plantation, FL 33317 (305) 584-9283

Feb. 6-8 Ft. Myers Festival of Shells, Ft. Myers, FL
Edie Chippeaux
1308 Biltmore Drive
Ft. Myers, FL 33901 (813) 936-4058

Feb. 14-16 Sarasota Shell Show, Sarasota, FL
Mary Mansfield
P. O. Box 15694
Sarasota, FL 34277-1694 (813) 955-2715

Feb. 21-23 Naples Shell Show, Naples, FL
Naples Shell Club
P. O. Box 1991
Naples, FL 33939
Anna V. Szent-Kirallyi
(813) 597-6115
Gloria Murphy
(813) 649-7308

Feb. 21-23 St. Petersburg Shell Show, Treasure Island, FL
Bob & Betty Lipe
440 75th Avenue
St. Petersburg Beach, FL 33706 (813) 360-0586

Mar. 5-8 Sanibel Shell Fair, Sanibel, FL
Anne Joffe
1163 Kittiwake Circle
Sanibel, FL 33957 (813) 472-3151

Mar. 12-14 Marco Island Shell Club Show X, Marco Is., FL
Robert & Joan Scribner
1012 S. Collier, #112
Marco Island, FL 33937 (813) 394-0399

Mar. 13-15 Treasure Coast Shell Show, Stuart, FL
Ted Jacaruso
1964 NW Pine Tree Way
Stuart, FL 34994 (407) 692-0270

Apr. 3-5 Georgia Shell Show, Atlanta, GA
Kenneth White
2587 Ballew Court
Marietta, GA 30062 (404) 977-0858

Apr. 24-26 St. Louis Shell Show, St. Louis, MO
Kathy Krattli
312 Capri Drive
O'Fallon, MO 63366 (314) 272-4266

June 20-21 XI Salon International du Coquillage
Lutry, Switzerland
Dr. Ted W. Baer
CH-1602 La Croix, Switzerland (021) 393771 or 207371

[Even though it will be held in Summer, it's not too early to alert people to the Conchologists of America annual convention, which will be held July 26-31, 1992 in Jacksonville, Florida. We are told that the annual meeting of the American Malacological Union will be held the first week of August on the west coast of Florida. Details of these meetings will be forthcoming. WS]

New Gastropods from the Plio-Pleistocene of Southwestern Florida and the Everglades Basin by Edward J. Petuch can be ordered for $12 from W.H. Dall Paleontological Research Center, Florida Atlantic University, Boca Raton, FL 33431.

Mollusks Found in Ancient Graves of Egypt

by Sam D. Freed, Hightstown, NJ

Our prehistoric ancestors saw beauty in shells just as we do today. Shells were used in making bracelets and necklaces, a bit of vanity to help make life a little more pleasant. When the individual died, their wordly possessions were buried with them in the belief that they would continue to enjoy their worldly good in the after life. In excavating these ancient graves we learn how these people lived. We find not only marine mollusks but also land and fresh water shells.

I recently had the opportunity to research the files of the Museum of Fine Arts, Boston for records of shell burials in ancient Egypt. From these records we were able to locate the actual burial specimens. An attempt was made to identify the shells, many of which were badly eroded or had been collected as beach worn specimens.

The time periods covered in ancient Egypt were Prehistoric, Predynastic (4000-3200 B.C.), Middle Empire (2134-1786 B.C.), and New Empire (1570-1085 B.C.).

Most of the material was excavated March 2, 1911; December 5, 1912 and December 4, 1913 by Harvard University and Museum of Fine Arts Boston Expeditions. In 1903 Albert M. Lythgoe purchased some other specimens which were later acquired by the Sears Fund for the museum.

Shells were cut or ground down to form beads and in other cases the shell was pierced and strung whole to form bracelets and necklaces. Small cones, cowries, nerites, turritellas and fresh water snails and mussels were found in the graves. Half a a fresh water mussel shell was used for mixing paint - this shell came from a Mesa'eed grave and is Predynastic.

In most cases the identification of shells was not determined due to the fact that the shells had been ground down to form beads; the tops of the cowry shells had been removed so as to expose the teeth on the underside and in some cases stone was cut and ground sown and mixed with shells. Shells were also used as pendants and amulets.

Prehistoric graves from Naguda and Zeweida yielded small cone shells strung for a necklace as well as beads from shells which had been ground down flat and circular. Beads of fresh water shells - white, brown and brown,white were made into a necklace.

Predynastic graves from Mesa'eed yielded fresh water mussels with a brownish deposit on the inside, probably used for mixing paint. The shells were in good condition. Another grave had nerite shells with parts missing. Cowries and nerites from Mesheikh had been strung together. A necklace of small speckled cone shells was found in a second grave. Another grave yielded a cowrie shell. A necklace of crude stone discs and irregular barrel beads with an amulet (broken) and a small cowrie shell was found in another grave. Other graves from the same area yielded a shell necklace composed of fifty-three black and white shell discs, two cone shells and nerites, a cowrie used as an ornament, several pendants and amulets of shell and stone, and a necklace made of small blue and black faience. Cylindrical and disc shell beads came from Naga-el-Hai. Another grave yielded a pendant made of a spiral shell, probably a turritella, one pierced shell and carnelian beads.

A Middle Empire grave from Sheikh Farag yielded a necklace of numerous kinds and shapes of faience beads, some carnelian; two flat pearl shell pendants and an amethyst hippo head amulet.

A New Empire grave had two cowrie shells strung together as an ornament.

The cowrie shells were mostly beach worn or ground down to show the teeth portion. Erato laevis (Donovan, 1804) were beach worn and had the tops removed for stringing. Clanculus corallinus (Gmelin, 1791) were beach worn shells with a pierced hole for stringing. A total of 24 graves were examined from seven sites.

This research was conducted at the Museum of Fine Arts Boston in the Egyptian Department with the assistance of Rita E. Freed.

References: Conchiglie Mediterranee by Giula D'Angelo - Stefano Gargiullo, 1981
Seashells of the World by Jerome M. Eisenberg, 1981
The Splendor That Was Egypt by Margaret A. Murray, 1963
Egypt's Golden Age:The Art of Living in the New Kingdom 1558-1085 B.C. by Rita E. Freed, Boston, 1982

Cowrie Coins - Collecting Seashells by the Seashore for use as Legal Tender

One of the strangest and most popular coins munches coral and algae on the bottom of the Indian Ocean. The shell of the Maldive cowrie, Cypraea moneta, has been used as money by the Chinese, the Hawaiians, the West Africans and Ojibwa Indians. It was considered money 4,300 years ago and is still used today.

Even when the cowrie is not money, it makes a popular ornament and a potent fertility talisman. The cowrie filled a need for small change among the poorest people of the world. In Nigeria, for example, an English penny was worth 120 cowries.

The cowrie shell first surfaced as money in China in the 24th century B.C. The Chinese character pei, "sea creature living in a shell," is still a part of many Chinese words associated with money. The cowries could not be counterfeited or defaced. The Chinese Emperor Wang Mang decreed that cowries would be the coins of the realm since copper coins were prey to clipping. Marco Polo noted the existence of cowries as money in Yunan and called them porcellani, a diminutive of porco, Italian for pig. The shells became the origin of the word porcelain.

The people of the Maldives traded the cowrie for rice in Bengal, where 15 cowries bought a pound of rice. Later the cowrie was brought to Africa by Arab slave dealers and was in use in the Mali Empire 500 years ago.

King Gezo of Dahomey found the cowries the perfect coin - they could not be counterfeited and any worthwhile amount of them could not be hid from the royal tax collector. Popularity of the cowrie became spectacular when it was used by Dutch and English in the West African slave trade.

The English and Dutch competed for the Maldive cowries, each seeking to find favor with the king and queen of the Maldives. There the cowrie trade was a royal monopoly. Palm branches were floated on the ocean and removed once cowries started eating the leaves. Live cowries were placed in pits, then removed weeks later. They were washed, sorted and loaded as ballast aboard English and Dutch ships bound for London and Amsterdam. There the cowries were sold to the West African slave dealers. In the early 1500's an English slave dealer could purchase an adult slave for 16 pound of cowries, about 6,400 shells.

By 1667, a slave cost 100 pounds of cowries, and by 1772, 450 pounds. The reason for the inflation is found in the two species of cowries residing in the Indian Ocean. Another cowries, Cypraea annulus or ring cowries, is more numerous than the money cowrie, Cypraea moneta.

Only in the Maldives are the money cowries numerous [and small] enough to be culled profitably. On the shores of East Africa, the ring cowrie can be picked off the beach, which is exactly what the British did. When the ring cowries, they have a small reddish-orange circle on top of the shell, were introduced into the slave trade, they debased the other currency, the money cowries.

In the early 1900's the cowries began to disappear from international trade. Colonial authorities decreed that cowries would no longer be imported or be accepted as tax payments. And finally coins of extremely small denomination were minted and came into common use.

The cowries are still in use in some remote areas of Ghana and Nigeria, especially in places where national boundaries cross tribal areas. There the cowries, without national insignia, are used for small transactions and the legend of the Cowries Mother still exists. Living in the bush covered in cowries, she'll bring riches to the person who catches her. In Ghana the modern coin, the cedi, is a direct descendant of the old cowrie, called a sedie. (by Jed Stevenson)

(New York Times, July 16, 1989, courtesy of Harvey Frajlich).

Zebra Mussels Invade Susquehanna; DEC Issues Advisory

(from an article in Waterways, Sept. - Oct. 1991 by Tom Apple)

Zebra mussels are making their way across New York State more quickly than most experts predicted. This statement follows the discovery of veligers, or zebra mussel larvae, at the electric power plant in Johnson City, on the Susquehanna River. These veligers came from colonies established somewhere in the river at least two years ago, and adults are expected in the next year.

These European freshwater bivalves average about one-inch long and are stronger and more prolific than our native clams. Spreading quickly and growing in colonies up to 750,000 per square meter, they threaten fish reproduction, foul beaches, and damage boat hulls. A primary threat is the blockage of intakes for municipal water treatment and electrical power plants.

In early Summer, 1991, these mussels were found in Oneida lake and at one location in the Hudson River south of Albany. The Susquehanna find is important as the first record of the zebra mussel outside the Great Lakes drainage basin. It is feared that from this location, they will spread to the Delaware and Potomac rivers and beyond. The Susquehanna find is also the first proof that the mussel can be easily spread overland, perhaps through the live bait wells of fishermen or professional bait suppliers.

Discovery of the zebra mussel in Cayuga Lake and at Vischer's Ferry confirm the rapid spread of this mollusk through New York waters. These molluscan invaders are expected to now be throughout the Finger Lakes and the Mohawk River.

The economic impacts of zebra mussel infestation are expected to be considerable, since the mussels can thickly coat the inside of water intake pipes at power and water plants. Several-inch thick clumps of mussels will block tubes and pipes and cause plants to be unable to produce needed electricity.

Efforts to combat the zebra mussel problem involve building redundant water intakes, coating intakes with copper or other substances, using huge centrifuges to filter the veliger larvae, and research to develop a toxic bacterial strain that will affect only zebra mussels.

But the consequences of the zebra mussel is sometimes unpredictable. Contrary to expectations, for the second consecutive year, Lake Erie has experienced an unthought-of improvement in walleye fishing. Fears had been that zebra mussels would interfere with walleye reproduction by filtering nutrients from the water and prevent fish larbae from developing normally.

Experts continue to plot the spread of the zebra mussel, and comment that not every body of water would be affected in the same way. One thing is certain - the environment of New York State has been changed forever with the introduction of the zebra mussel. (via Jack Foehrenbach and Dorothy Raeihle)

The Shell Collection of Fred R. Cannon, Jr.

by Fred R. Cannon, Jr.

Thirty-seven years ago, upon entering "General Science I" in my first year of high school, I was assigned a term project on "A Living Thing." A research paper or a scrapbook with visuals had to be presented to the entire class. Being visually-oriented, I chose to prepare a scrapbook, feeling (no doubt) that it would be less taxing on my brain and the easier solution. How or why I selected marine invertebrates, I am still not sure. It could well have been the memories of summers spent at Port Jefferson, Long Island, where I found those strange-looking egg cases that washed up on the beach. Not sure what they were, I thought they resembled the backbone of some strange animal which, when shaken, rattled like a rattlesnake.

When asked how I began shell collecting, I usually reply that it was due to mental laziness. Little did I realize at the time that my hobby would turn into a lifelong romance - avocation - hobby - or, depending upon how you view it - a "disease!"

I immediately began researching and collecting information on different families and species, not really knowing what it was all about. Compiling, typing, and mounting this material was only the beginning. I also needed the visuals. I managed to con my older sister, an excellent poster-style artist, to help with illustrations for each "biography." Somehow, the idea of presenting actual specimens finally hit me. Searching the Yellow Pages, I found two shops which sold shells, one in Elmhurst, Queens (whose name eludes me), and MacArthur's Shell Shop on Manhattan's East 61st Street.

Saturday mornings could never come fast enough, as they were allowance day and - "MacArthur's Day." The moment Dad gave me my allowance, I headed straight for the subway and East 61st Street. Quickly becoming a Saturday regular, I soon made friends with Mr. Braun, the strange little man (so I thought) who never removed his coat, tie, or homberg; Veronica Johns; and yes, even the very strange, non-smiling MacArthur himself. Veronica and I shortly became fast friends, a friendship lasting the rest of her life.

I was permitted the complete run of the tiny shop, and could rummage all through the drawers, cabinets, and glass cases to make my big purchases of 25¢ -, 50¢-, $1-, and $2-shells. Each year early in September and December, I made special trips, "scouting expeditions," as it were. Perusing the drawers of slightly more expensive specimens, I would carefully compile my birthday and Christmas "wish lists" and happily present them to my parents. Mother and an aunt would then meet with Veronica in the shop and fill the list to the extent their pocketbooks would allow.

Due to construction of a highrise apartment building, MacArthur had to move his shop to Third Avenue and 39th Street. Along with another Saturday regular, I volunteered to help move the shop. The trucking company moved the entire shop - lock, stock, and Murex pecten, cases and cabinets, as - filled with shells unwrapped or packed. We worked all day Saturday to get the new shop in order. My "reward" from MacArthur: a Terebra, it's $1.25 data slip still glued on!

After about six months, Veronica suggested that I might enjoy the New York Shell Club, so sometime in 1956 or '57, I enrolled and was quickly taken under the wing of the then Corresponding Secretary, Josephine Wichern, and other older members. I faithfully attended meetings and auctions all through my high school years. In those days, 50-70 people attended. I can remember the excitement - oh, how my hands shook! - as I won the door prize at an auction at the National Arts Club in Gramercy Park. It was a beautiful specimen of Pleurotomaria hirasei, donated by Nick Katsaras. It still sits proudly on display.

During the next few years after high school, I was intensely involved in developing my career, having enrolled in Parsons School of Design to study interior design. I now had little or no time for hobbies, so my collecting was put on hold. Several years later, I established myself in my own apartment and moved the collection in. It was displayed in the entrance foyer on a mirrored and specially-lighted wall. The beauty of the specimens always induced comments and discussion from friends and guests. The usual front door good-byes lasted another hour! My interest in collecting again was stirred and has been going full-steam since.

Soon, I became close with Dot & Bob Janowsky, who one night over dinner in my own house, twisted both my arms to assume the Vice Presidency of the New York Shell Club. After only one year, I was thrown headlong into a four-year term as President of NYSC.

My collecting has carried over into my career. On several occasions, I have selected and purchased starter collections to display in clients' houses. One collection went to Kuwait. Another time, I even bartered my talents and services for rare specimens!

My collection, at present, consists of some 4,500 worldwide specimens, and I have large collections of Cypraea, Conus, Pecten, Murex, and Spondylus. I collect all families of marine and land species. Several years ago, I started to collect freak shells, and have accumulated a rather large and varied group. At that time, very few collectors were interested in them, as they weren't gem quality. I find them a most interesting contrast to my regular collection.

With today's technology, my collection is no longer catalogued with tiny, typed paper numbers glued on and half falling off, or with overstuffed data index card files. Every specimen is carefully hand-numbered, completely indexed by family, and entered into my computer.

The collection has won two C.O.A. trophies, several blue, red, and green ribbons, and is always available to anyone interested.

As for my collection's future, I'm often asked, "Are you still obtaining specimens and adding to the collection?" Yes - constantly - and I guess I always will until the collection moves me out of my house. The American Museum of Natural History here in New York has expressed interest in the entire collection, and that will someday be its final resting place.

EDITORIAL NOTE - You will notice that several articles in this issue of NOTES have been written or submitted by NYSC members. These contributions greatly enhance the readability of these pages and make editorial tasks much easier and more pleasant. My thanks to all who have helped out, and especially to Dorothy Raeihle, who provides guidance and material as I strive to be her "hands-on" substitute. I encourage others to send in original articles, items in print that you find of interest, and any details about your involvement in shell collecting that you would like to share with us. Your "life story" as a shell collector may be as detailed as you choose - we will undertake to print what we are sent - and gratefully. To that end, please take note of Fred Cannon's article on pages 12 and 13 and the short mentions on page 3.

Many thanks to NYSC President Al Scarpetti for making the arrangements with the bus company and seeing that all went as scheduled for the October 6 trip to the Delaware Museum of Natural History.

Best wishes to Treasurer Theta Lourbacos and Editor Dorothy Raeihle who are recuperating very well from their recent hospitalizations. We know they will soon be resuming their busy schedules .

Let's Go Shelling! Or Shall We?

by R. Tucker Abbott

Three years ago I parked my bicycle by Bermuda's Longbird Island Causeway and climbed down the embankment to collect shells in an old haunt of mine. Forty years ago I used to wade out into the clear blue waters of Castle Harbour and, amid the flourishing corals and sea fans, collect a half dozen *Cyphoma gibbosum* or snorkel out to get a couple of the edible *Strombus gigas* for lunch.

But in 1988 I found a sickly opaque-green expanse of nearly lifeless landscape. The brightly hued parrotfish were gone, the *Zostera* eelgrass beds were reduced to short, brown bristles, and the edges of the limestone shore were darkened with the residue of old tar.

Only yesterday I spent an afternoon searching the low tidal flats on the San Carlos Bay side of famed Sanibel Island, Florida. Where once I could have found a dozen Florida cones and as many pear conchs as I could carry, I now find, on the best collecting days, only a few dead conchs being hustled away aboard crochety hermit crabs.

Times have changed and so has our environment.

From Neanderthal man to the beachcombers, conservationists, and naturalists of today, all within the sound of the ocean's waves have been lured to search along sandy shores for cast-up shells. So popular has been the pursuit, and so varied its opportunities, that malacology (the study of mollusks) once was called the Queen of the Natural Sciences. For whatever purpose - commercial, hobby, or scientific - shell collecting continues.

Finding a healthy place to locate living mollusks is more difficult today, not only along the U.S. seaboard but in nearly all the inland states, whose freshwater domains are deteriorating. Malacologists estimate that nearly one-third of our inland species of shells have become extinct due to human activities.

Along the shore, it is much the same. Temporarily or not, gone are the live turban and *Astraea* star shells once so abundant on Soldier Key near Miami. The myriads of queen, or pink, conchs that once dotted the shallows of the lower Florida Keys have all but vanished.

On a recent bumper-to-bumper drive down Florida's Overseas Highway all the way to Key West, I stopped frequently to check on the water activities of the thousands of people enjoying their safaris to the many beach-ringed keys. While the majority were lolling in the sun, overfilling trash barrels, or splashing in the water, few were engaged in snorkeling, much less stooping over in that well-known shell-collecting stance. There were a few exceptions, but obviously only a small percentage of the vacationers were a threat to the shell populations.

This is not to say that certain edible or commercially valuable shells have not been overcollected with deleterious effects. In the 1980s the number of large, edible pink conchs in Florida was reduced to dangerously low levels when commercial fish-market suppliers descended upon the Keys to snatch up every conch in sight. These delicious molluscan mammoths were a ready and tasty foodstuff, particularly for people living in South Florida.

Malacologists and fish-and-game lawmakers teamed up to study the problem and introduced an effective law prohibiting the collecting of any live pink conchs in Florida. By 1990 half of the previous numbers of conchs had returned, and by 1993 the populations should be back to normal. Perhaps someday one will be permitted to collect a limited number of adult conchs per person per day.

There are other laws about shell collecting, some of them wise and effective, others passed in haste and only of minimal psychological value.

As an example, it is unlawful in the United States to import, buy, or sell the beautiful green tree snail, Papustyla pulcherrima, found abundantly on the Papua New Guinea island of manus. The inch-and-a-half -long snail lives high in the jungle trees of the central region of the island. According to Australian conservation experts and American malacologists, this species is not endangered or threatened by shell collectors.

In contrast, people often express concern at the absence of collecting laws. For instance, a huge pile of conchs or abalone shells in front of a shell shop raises the protective fervor of those not realizing that these specimens are the byproduct of human's "necessary" activities. All were used for food purposes, just as one can find in many places huge piles of oyster, clam, and scallop shells.

This, of course, raises the moral and social dilemma of how far to go in passing laws on collecting or on destroying the habitats of wildlife. There are extreme views in each camp. Is our choice owls or employment in the lumber industry? Oysters in Chesapeake Bay or boating and industry in the area?

Some say that the edibility of a species should determine if we should be allowed to collect it. That is why California allows the collection of most clams, but prohibits the disturbance of a minute nudibranch or one of the abundant periwinkles. The biology of any particular group of animals or plants should determine the nature of the laws. The American bison is edible; yet it became necessary to prohibit the hunting of it in order to restore its populations. What holds for birds or mammals usually doesn't hold for mollusks. While most female vertebrates produce fewer than half a dozen young a year, many mollusks produce eggs or young by the thousands at each breeding.

The renowned Florida shelling mecca of Sanibel Island, feeling the pinch of fewer numbers of shells on the beach, and in keeping with the rising tide of conservation, a few years ago passed a city ordinance that no one could collect more than two live specimens of any one species on a given day. For casual collectors, the effects of this law are more psychological than of any real use. Most of the shells picked up by visitors are found dead on the beach, especially after a strong, cold northwest blow. Fewer that three percent of the live populations of these species are found within 100 feet of the shoreline. The other 97 percent flourish offshore in several fathoms along a flat bottom 300 miles long and about 25 miles out to sea. If there's a shortage of shells on Sanibel's beaches at times, it's because there has been a recent "red tide" befouling the area, a summertime lull in northwest blows or, more importantly, thousands, not hundreds, of shell pickers hitting the beaches every morning.

But environmental deterioration or destruction is reducing the populations of mollusks more than the effects of casual shell collecting. The inshore waters of San Carlos Bay of Sanibel are suffering from poor circulation caused by the causeway and the mounting chemical runoffs from golf courses, lawns, streets.

Commercial shelling can also be destructive, especially if the habitat is disturbed. Some heavily populated areas of the West Indies suffer from overcollecting of edible or salable large shells, such as the tritons, helmets, and conchs. In Haiti, where there is excessive shelling for food and commercial shell-craft souvenirs and extensive destruction of forests, the Liguus tree snail has all but disappeared.

Another type of threat to mollusks occurred in some South Seas islands. There the native tree-snail fauna was completely devastated because of the introduction by agricultural experts of the carnivorous American snail Euglandina rosea to control the vegetable-eating giant African snail Achatina. In the Society Islands and Hawaii, the snails Partula and Achatinella have been nearly eliminated by this carnivorous snail that tired of its intended menu and took to the native snails.

But not all is doom and gloom for the future of mollusks. Many areas in the world remain healthy. Many industries and municipalities are taking effective measures to combat pollution. Several major rivers have seen great restorative progress. Curiously, the establishment of protected marine parks has not always been favorable to shell populations. In recent surveys along the Kenya coastline, marine scientist Tim McClanahan found that most shell populations fare better outside the parks. Within the parks, fish that feed upon young gastropods, particularly triggerfish, were ten times more abundant. Fishermen, by removing gastropod predators in the unprotected areas, indirectly increased the densities of shell populations. The ecologist's studies further suggested that the collecting of shells is unlikely to cause species entinction or greatly affect the health of the coral reefs.

For some shell populations, the pressure is partially being removed by the development of mariculture, or farming of marine organisms. The rows of bright purple, red, and yellow scallops sometimes seen in shell shops are the by-products of a food-raising venture in Japan.

The practice of mariculture is an ancient one. In southeast Asia, the culture of bivalves began many years ago. For centuries, primitive methods were used by staking out bamboo hedges and later harvesting the attached bivalves. In Japan, a breakthrough occurred in the early 1920s when a system of hanging ropes from rafts and barrels was instigated. Every school child had heard of Mikimoto's farming of oysters and the growing of precious pearls, but few realize that millions of tons of mussels, clams, scallops, abalones, and conchs are being raised annually for the market, especially in southeast Asia and Australia, in artificial seawater tanks or on shellfish farms.

In Papua New Guines, even the giant Tridacna clam is being raised in open-air seawater tanks. Blue mussels, oysters, and periwinkles are now maricultured and sold in New England fish markets. In Florida, at least 15 pilot plants have been established on the east coast in which the small Mercenaria cherrystone clams are being raised by the millions in protective cages.

Shell collecting need not take you only to a sand flat or coral reef. Some of the most interesting collecting can be done in fish markets around the world. A large number of different shells, many very attractive, may be found in the fish stands of South America, southeast Asia, and tropical Africa. A walk through a fishing village in Senegal will net three or four kinds of large Cymbium volutes, two attractive Murex species, and a host of other gastropods. In the seaside town markets of Thailand, early morning vendors display large trays and buckets of live venerid clams, ark shells, and glossy green mussels.

When the edible calico scallops of Florida are brought to the dock by dredging boats and shucked of their small muscles, their empty shells are discarded by the millions, with other marine debris, onto spoil dumps where shell collectors and birds gather to carry off specimen shells and dead fish. Junonias, lion's paws, scotch bonnets, and a host of uncommon shell species, known to collectors by their fanciful names, are there for the stooping and picking.

Some shells are collected for a definite scientific purpose. In order to gauge the health of bay or river waters, ecologists conduct a census of the mollusks, taking samples of these biomonitors to determine the presence of bacteria, viruses, toxic chemicals, or the extent of leakage from a nearby nuclear plant. In medical surveys the presence or absence of a colony of Oncomelania or Biomphalaria snails can immediately indicate the chances of local people acquiring the fatal schistosomiasis liver-fluke disease that is carried and spread only by these gastropods.

Shell collecting by naturalists and amateur conchologists has been an important source for large collections, such as those held by the Smithsonian Institution and the British Museum of Natural History. Contributions on taxonomy and evolution have been derived from data assembled by amateur shell collectors. The continuing collection of this material enables us to monitor the extent and health of the world's mollusk populations.

In contrast to shell-collecting missions is the need to destroy, or at least limit and confine, several dozen harmful mollusks. Each year millions of dollars of damage are done to seedlings and tender vegetable crops by slugs and garden snails. Vast beds of oysters are sometimes seriously affected by the common oyster drill (Urosalpinx), which must be collected periodically.

Latest of the foreign invaders [see page 11, this issue, NYSC Notes] is the inch-long zebra mussel (Dreissena polymorpha), an originally European species that has multiplied in such numbers in the Great Lakes as to threaten the fisheries of the area and to block intake pipes to city waterworks and factories. Limnology engineers estimate that the costs of controlling this pernicious bivalve invader may run to between $2 and $4 billion. By enlisting the aid of volunteers , we can keep watch on the progress of this freshwater mussel as it eventually moves southward.

Shell collecting spurs a desire to learn how mollusks live and promotes a respect for their place in the web of life and an awareness of their fragile ecology. Collecting shells in small numbers can be a rewarding experience, harmless to the environment. Collecting in excessive numbers, however, means the destruction of local populations, to say nothing of the personal drudgery of cleaning and caring properly for overly large collections. (One hears of bags of overcollected live shells being taken north uncleaned, and ultimately tossed away because of their offensive odor. Fortunately, such ventures usually occor only once.)

The most effective way of helping our wildlife is through education and understanding. We can teach children about the miracles of nature and the need to protect our environment by acquainting them with the wonders of mollusks and showing them how to collect sensibly and with care.

(This article appeared originally in Sea Frontiers, October 1991 under the title "The Shell Collector Threat").

Mrs. Ann Stoddard, c/o Rt. 27, Box 452, Boothbay, Maine 04537 writes that she is interested in hearing from anyone who would be wanting to add to a shell collection specimens from the collection of her late husband Kenneth. "There will be no catalog, but if someone has an interest for a particular shell, I will check through the collection and see if there are any available."

Dorothy Germer, long-time NYSC member formerly from Maywood, NJ and now living in Beverly Hills, Florida, has sent us several clippings detailing her showing part of her extensive collection in their local library. Several newspaper articles also featured Dot and her shells. It's great to see one of our most "shell-shocked" members continuing her hobby, and we send best wishes to Dot and husband John. They often ask to be remembered to NYSC members.

We have space available in the March 1992 issue of NYSC NOTES - what about it?

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
283 W. 11th St.
New York, NY 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, NY 11223
718-449-0244

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family - with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas paid in U.S. currency.

The Treasurer - Membership Chairman should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1991 - 1992

Please consult the current edition of the NOTES for confirmation of meeting dates and places.

1991	Sept. 8	Rm. 319	1992	Feb. 9	Rm. 319
	Oct. 6	Field trip		March 8	Rm. 319
	Nov. 10	Rm. 319		April 12	Social/Auction
	Dec. 8	Rm. 319		May 10	Rm. 319
1992	Jan. 12	Rm. 319		June 14	Rm. 319

Meetings are held the second Sunday of each month, September to June, except that the October meeting will be a field trip on the first Sunday in October.

Except as noted, meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History (unless advised). Present your membership card for admission to the museum for the meetings.

PROGRAM SCHEDULE

SUNDAY, MARCH 8, 1992, at 2:00 p.m.

Oceanography - Hank Foglino

SUNDAY, APRIL 12, 1992 - details to be announced

annual NYSC auction and social - Astoria, Queens

SUNDAY, MAY 10, 1992, at 2:00 p.m.

Shelling at San Felipe, Baja California, Mexico
by Doug von Kriegelstein

SUNDAY, JUNE 14, 1992, at 2:00 p.m.

NYSC member Bob Janowsky - title to be announced

CONTENTS

		Page
Highlights of Recent Meetings	Milton Werner	2, 3
In Memoriam - Miriam W. Schriner; Ruth Juster		4
April Auction & Social - Update and request		4
Publication Note - New Pecten Book		4
Book Review - Marine Prosobranch Gastropods from Oceanic Islands off Brazil by Jose Leal	R. Tucker Abbott	5
Zebra Mussel Reports	*Coastlines*, etc.	5, 6
Down Memory Lane	Marian S. Hubbard	7, 8
Coming Shell Shows and Events		8
The Paper Nautilus	Vivienne B. Smith	9, 10
Xray Conchology (*Kuphus polythalamia*)	Harry G. Lee	11, 12
Growing Scallops in the Lab	Terry Tomalin	12
My Personal Involvement in Shelling & Malacology	Walter Sage	13, 14
Massachusetts Shellers "Down in the Dumps"	Michael La Fosse	14
Pleurotomaria - 225 million Years of Perseverance	Tom Pain	15, 16

As reported on this page of the December NOTES, we need the help of NYSC members to conduct a successful auction and social at our April meeting. See page 4, this issue, for a short reminder; details will be sent out in a separate mailing in a few weeks. NOW is the time to contact Al Scarpetti, Mike Werner, or Sol Weiss with offers of assistance or specimens. It is also time to think ahead to the annual election of officers to be conducted at the June meeting. We will hear more from Al Scarpetti at the next few meetings.

HIGHLIGHTS OF RECENT MEETINGS

DECEMBER 8, 1991: President Al Scarpetti announced the topics for the January and February meetings and stated that he would have data on the programs for the March, May, and June meetings at a later date. He further stated that it is now time to prepare the letter to be sent to the dealers and other interested parties for shells to be donated for the April auction. It was decided that the Board of Directors would meet on Tuesday, January 7, 1992 to draft this letter.

The Treasurer's report for the period from September 1 through November 30 was read and accepted. Treasurer Theta Lourbacos reported that various matters have delayed the changing of bank accounts as reported in the highlights for the September meeting, and she hoped to make this transaction soon.

Nick Katsaras commented on the article on Marginella musica that was in the December issue of Hawaiian Shell News. It was noted that this rare species is occasionally taken by dredging off South Africa. It is such a desirable shell that a crew member of a fishing boat that obtained a specimen immediately put the shell under his tongue for safekeeping while he continued working. Nick also mentioned an article in the same issue on the rare Conus adamsonii.

The door prizes were Malea ringens, won by Rich Kelly; Cyrtopleura costata, won by Ed Cowles; and a pair of Conus violaceus, won by Nick Katsaras.

The speaker was Rich Kelly of the Long Island Shell Club. Rich and his family had taken an 8-day trip to Washington state in 1987, and had spent considerable time looking for mollusks. They visited Mt. Rainier National Park and several other parks and forests. We were treated to beautiful scenery, animals, plants and insects, and, of course, shells! The first mollusk shown was a beautiful land shell, Monadenia fidelis. Other mollusks taken in the various places visited by the Kellys included several limpets, Nucella lamellosa, N. lima, N. emarginata, Crassostrea gigas, Siliqua patula, Olivella biplicata, Acmaea digitalis, Tegula funebralis, Searlesia dira, Littorina sitkana, Clinocardium nuttallii, Saxidomus gigantea, and Trichotropis cancellata. Those in attendance enjoyed both the lively presentation and the variety of shells from these areas.

JANUARY 12, 1992: President Al Scarpetti introduced new member Carl Ehrlich and two visitors. He then read the text of the letter that will be sent to dealers asking for donations of shells for the April auction. Florence Fearington gave a brief preview of the presentation she will offer at the February meeting. Al described the plan for the lunch, at noon in the museum restaurant, that will precede this meeting. He then explained why it was impossible for the day's scheduled speaker, Hank Foglino, to be present. This program will instead be presented at the March meeting.

Treasurer Theta Lourbacos described some of the ways in which dues money is used, noting that our NYSC NOTES is sent to shell clubs, museums, and libraries representing 13 countries. She read appreciative comments that the mail had brought from some of these recipients.

The program for the day, which Al had successfully arranged under time pressures, consisted of brief talks by members on shells that they find especially interesting. The first speaker was Ed Cowles, who showed and commented on slides of Cypraea aurantium and Murex beauii; dioramas from the Smithsonian; and several taken in Mexico, mostly on the west coast, including scenery, living specimens, and underwater scenes.

Henry Gordon displayed five shells: Conus textile, Hinnites multirugosus, Conus episcopus, Strombus listeri, and Sthenorytis pernobilis. He recalled how he had become a collector in 1955, and vowed at that time that he would never buy a shell. He broke the vow within six months - the fatal attraction being the Conus textile. He also told how the other four shells had enlivened his collecting career.

Nick Katsaras had brought along three urchin tests from Thailand, an excellent specimen of Conus lynceus, a Cancellaria antiquata from Taiwan, a very large Amaea mitchelli, and a perfect specimen of Periglypta puerpera. His grand finale was a pair of ear bobs, featuring small Thatcheria mirabilis, that he had bought in the Bergen Mall (New Jersey) for 99¢!!

Al, predictably, displayed several Conus species. As an artist, he first became attracted to them by the colors, and later by their shapes and patterns. Among them were a Conus coccineus, marked with a "skyline", that resembles a row of apartment houses; a C. augur, "illustrated" with human and animal figures; and a C. pica with the letter "s" in its design.

Irv Hoppenwasser showed a series of Oliva. He got started as a collector, he said, when he stepped on a shell at a Ft. Lauderdale, Florida beach, so becoming aware that there are more than clams and scallops.

Howard Israel displayed a Papuina pulcherrima and a Voluta pulchra. His first ventures in shelling were some purchases in a New York shop. Then, during a hitch in the army, he was stationed in Hawaii. He soon found himself SCUBA diving with a general's son, and becoming much more interested in shells. He keeps his shells in a glass cabinet, where he often can look at his prizes.

The door prizes were Conus ranunculus, Bursa crumena, and Xenophora conchyliophora.

FEBRUARY 9, 1992: President Al Scarpetti noted that 15 persons had attended the lunch gathering that preceded the meeting. Al then reported the death of member Ruth Juster, who had suffered a heart attack. He sent a condolence card to Ruth's husband Leon in the name of the Club.

After introducing visitors Jill Sinclair and David Epstein, Al drew attention to several antiquarian shell books that Hans and Arline Reimann had brought and placed out for viewing. Al then asked Milton Werner to assemble a committee to make the preparations necessary for the April auction and social.

The speaker was Florence Fearington, who presented, with slides and description, an overview of the history of the publishing of books on shells and other natural history subjects. Showing photographs of title pages and illustrated pages from books from about 1550 to 1880, she commented on the authors, early printing methods, and the progression of illustrating technique from wood block carving to engraving. In the days of coloring by hand, she noted, it was possible to buy uncolored copies of books. Among the subjects of the books, other than malacology, that she photographed were fish, including "mermen", and animals, including dragons and sea monsters. At the time, the oddballs were considered best - possible depictions based on "eyewitness" reports. Florence's last series of slides were page-photos of "books for the eyes" - shell books illustrated with process color.

The door prizes were Maurea cunninghami, won by David Epstein; Conus purpurascens, won by Steve Meurer; Murex zealandica, won by Irv Hoppenwasser, and a copy of Florida's Fabulous Seashells by Winston Williams, won by Denise Ehrlich.

Have you sent in your donation of shells for the April auction? To date we have received only a few items, so we are depending on YOUR generosity.

MIRIAM W. SCHRINER

It was with sincere sadness that we learned of the death late in January of our friend and associate, Miriam ("Mimi") Schriner, widow of Howard Schriner. She was 77 years of age.

Howard and Mimi Schriner made their home in La Belle, Florida, for many years. Paleoconchologists, their studies concentrated on the Tertiary fauna of the Kissimmee and Caloosahatchee Cana Basins, researching evolution and distribution of mollusks to compare with the Recent fauna of the Gulf and Caribbean.

Our world is poorer without them.

DR

RUTH JUSTER

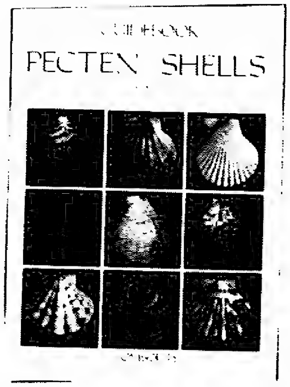
We announce, with regret and sadness, the passing of New York Shell Club member Ruth Juster, in January 1992. Ruth is survived by husband Leon, and a son and daughter and their families. We extend our sincere sympathy to them.

Although we have not seen much of the Justers in recent years, local members will remember with great pleasure the gathering at their Manhattan home some years ago at which we admired their beautiful and extensive collection. This visit was a real treat. Ruth, we are proud to have known you.

WS

April Auction and Social - Sunday, April 12

As you have read on the previous pages of this issue of NYSC NOTES, we are making plans for our annual auction and social. Milton Werner (718-277-2076) is coordinating preparations - please call to offer your help, or see him at the March 8 meeting. Sol Weiss, 2562 Ramona Street, East Meadow, NY 11554 (516-221-4924) is accepting donations for the auction. To date, items have been received from R. Tucker Abbott, Marty Gill, and Dan Spelling. We need the help of all members to put together a successful auction. If you can't get the material to Sol by March 15, please bring material to the museum to the March meeting, and Walter Sage will get the items to Sol; or call Sol or Al Scarpetti (212-929-7430) so that we can compile a list to be mailed out before the first of April. This auction is our major fund-raising event, and since we have exhausted the items from Veronica Johns so graciously donated by Dorothy Jensen, we need everyone's help. And come join us on April 12.



Finally, a workable, handy color guide to 381 species of scallops! Shell collectors and curators of scientific mollusk collections will find this over-view of the world's most colorful bivalves tops in their reference libraries. Over 194 species are illustrated in clear color, with brief descriptions, comparative remarks, authors-and-dates, and geographic ranges. Five Dutch experts, headed by the late Antonius Rombouts, have assembled the latest information, including an appendix of newly described genera and species. Hardback, sewn, 157 pp., 29 color plates. Distributed in the Americas by American Malacologists, P. O. Box 1192, Burlington, MA 01803. $40.00, plus $2.00 for mailing.

REVIEW:

Marine Prosobranch Gastropods from Oceanic Islands off Brazil by Jose H. Leal. 1991. 418 pp., 25 pls., maps, charts, paperback. U.B.S., Publ., Holland. Distributed in the United States by American Malacologists, P. O. Box 1192, Burlington, MA 01803. $74.00, postage paid.

In a thoughtful and detailed analysis, Dr. Leal, a recent graduate of the University of Miami, has discussed the origins and development of the marine molluscan fauna, not only of the small chain of islands off the coast of Brazil, but also the main Caribbean province. He presents maps of ocean currents, geological plate movements and the distribution of so-called "hot spots" in the floor of the South Atlantic Ocean.

The author discusses the importance of the modes of growth development in the protoconchs of prosobranch gastropods in determining the relationship of the fauna of the offshore islands and banks with those of the Brazilian mainland and the Antilles to the north. He explains and illustrates the differences between planktotrophic larval types and non-planktonic forms. He presents in a table the development type, bathymetric level and insular distribution of 297 marine gastropods. Especially useful to students of oceanography and plankton, as well as for serious Caribbean shell collectors, are 25 plates with numerous scanning electron microscope photographs of young stages and protoconchs.

A large bibliography serves as a useful guide to the pertinent literature on South Atlantic malacology and marine zoogeography.

R. Tucker Abbott

Zebra Mussels Spreading Rapidly Throughout the Great Lakes into the Mississippi River and Beyond (from COASTLINES, vol. 21, no. 3, NY Sea Grant Institute)

According to Sea Grant's Zebra Mussel Information Clearinghouse, zebra mussels have now been found and verified in two locations in the Mississippi River, one just south of La Crosse, Wisconsin and the other some 500 miles further downriver in an area north of St. Louis, Missouri. The mussels have also been found in the Lake Kentucky portion of the Tennessee River near the Kentucky border.

In New York State the zebra mussel's extraordinarily rapid spread has reached as far south as Newburgh in the Hudson River; Cayuga and Seneca lakes, the two largest of the Finger Lakes; and the Susquehanna River near Binghamtom along the Pennsylvania border. With the mussel's relentless advance into the lower part of the state, experts are becoming increasingly concerned about its impact on the reservoir system that supplies fresh drinking water to millions of New York City and metropolitan area residents.

While many of the sightings are of just small numbers of mussels, experts say that large colonies may develop in those areas over the next 18 months. If that happens, utilities, water treatment plants, docks, boat bottoms, rivers and lakefront areas may become clogged with zebra mussels, a rapidly reproducing bivalve mollusk with alternating light and dark bands that give it a zebra-like shell pattern. The current estimate for controlling this pest in just the Great Lakes region alone is $5 billion over the next decade.

Unfortunately, the mussel's rapid spread makes it difficult for researchers to investigate how the mussel adapts to its new environment. "We are just learning how the mussel reacts within the Great Lakes and how it affects that ecosystem," explains Charles O'Neill, project director of Sea Grant's Zebra Mussel Information Clearinghouse. "Now with the mussel's move south we are dealing with many different environmental conditions and concerns. For example, how the mussels interact with their environment in the Great Lakes may be quite different from the way they react in the Finger Lakes or the Mississippi River."

In order to establish colonies, some as dense as 700,000 mussels per square meter, the mussels need a hard or rocky surface on which to attach their highly adhesive byssal threads. Bodies of water with a sand or silt bottom may not be suitable locations for the mussels. And zebra mussel experts think that the mussels may be able to survive and colonize brackish (part saltwater/part freshwater) locations to some extent.

Even such fundamental questions as the number of offspring that female zebra mussels produce are now being reexamined. "We have believed that the female was capable of producing 40,000 to 50,000 eggs per year," says Dave MacNeill, a New York Sea Grant extension specialist. "Now we are reading from European researchers that this may be a gross underestimation, with the real number of zebra mussel eggs per female closer to 1 million per year."

While many questions remain unresolved, some of the most current research was presented at the Second International Zebra Mussel Research Conference November 19 to 22 in Rochester, New York. The conference was sponsored by the Great Lakes Sea Grant Network, and Environment Canada/Fisheries and Oceans.

New research into the realm of zebra mussels has started for several New York Sea Grant researchers this past fall, with funds amounting to almost $353,000 over the next three years. The funding was part of a special $1.3 million funding initiative for zebra mussel research by the National Sea Grant College Program. This latest round of research includes studies by:

Linda Chalker-Scott, Howard P. Riessen and James D. Scott (SUNY College at Buffalo), on "Effect of Ultraviolet-B Radiation (280-320 nm) on Survivorship of Zebra Mussel (Dreissena polymorpha): A Potential Control Strategy".

Joe Regenstein (Cornell University) and Susan Goldhor (Center for Applied Regional Studies), on "Environmental and Economic Benefits from Zebra Mussel Harvesting through Contaminant Reduction and Product Development."

Donald J. Stewart (SUNY College of Environmental Science and Forestry at Syracuse and SUNY College at Oswego), Myron J. Mitchell (SUNY College of Environmental Science and Forestry at Syracuse), Edward L. Mills and John L. Forney (Cornell University Biological Field Station), on "The Impact of Zebra Mussels (Dreissena polymorpha) on Lower Food Web Dynamics in a Large Freshwater Ecosystem.

Zebra Mussels Infiltrating the State of Missouri

After a long abut perhaps inevitable journey, the tiny and troublesome zebra mussel has found its way to Missouri.

This small European mollusk reportedly traveled to this continent in the ballast tanks of ocean freighters, first appearing in Lake Erie in 1988. The mussels have since spread into all the Great Lakes, and in September 1991 were found in Missouri's portion of the Mississippi River.

(Cindy Borgwordt in Missouri Conservationist, January 1992)

More Zebra Mussels Found in Ohio River

Zebra mussels, which have caused problems by clogging water-intake pipes and fouling boat hulls, have been found at a second location in the Ohio River - in Spencer County, Indiana [near Owensboro, Kentucky]. These mussels were first found in the Ohio River in October 1991 at Olmstead, Illinois.

(Louisville Courier Journal, February 4, 1992)

DOWN MEMORY LANE by Marian S. Hubbard, Seaford, New York

I had just returned from a trip down Memory Lane when last December's NOTES arrived with Fred Cannon's article about his shell collection. On November 26, 1991 I gave away all my marine shells and fossils plus assorted beachcombings and marine life. They are now at Rider College, Lawrenceville, New Jersey.

While going through the shells (with the help of Tom Rice's "Catalog of Dealers' Prices") for income tax purposes, I called up many pleasant memories. There were wonderful flashbacks of shell club field trips and auctions, A.M.U. meetings, and conversations with scores of other collectors.

I "caught the bug" while on vacation in Vero Beach, Florida in 1958. My parents and I stayed with my aunt and uncle, who lived just two blocks from the ocean beach. I was captivated by the lovely shells on the beach, and an even greater variety in jars in the apartment. I looked through their copy of "Field Guide to the Shells of the Atlantic and Gulf Coasts" by Percy Morris, but did not take any shells. I bought a copy of Morris' guide and read it several times over the winter. The next summer, I started collecting in earnest. That fall there was a New York Shell Club Auction at the Gramercy Park Hotel, and it was written up in the New York Times. At the time I worked at a Chase Bank branch just a few blocks away. I contacted the hotel and was given Jo Wchern's name and phone number. She invited me to the New York Shell Club, and I joined at once. It took me about two years of meetings to get used to the molluscan terminology. Then I was elected Recording Secretary and found that I had to learn to SPELL those words. I still laugh at the memory of calling Bill Old on the phone to get spellings. His Virginia accent was somehow broader over the telephone, and I had a terrible time getting things straight.

I was collecting shells on visits to Florida and on field trips with the New York Shell Club. I was learning a little about the animals that make the shells. Then I started thinking about attending an annual meeting of the American Malacological Union. One club member gave me the courage to go. She had been among those who had attended the 1960 meeting in Montreal, Canada, and reported to the NYSC that September. After her talk, I told her on my interest. I was afraid I would not understand what they were talking about, because my background was in banking, not zoology. She replied, "Well, I only understood about half of what they said, but the half I understood was very interesting." On the spot, I determined to go the next summer. I wanted to understand more than half, so I worked on vocabulary.

I studied my copy of J.E. Morton's "Molluscs" (1960) with the help on an unabridged dictionary. I still have the stack of vocabulary cards I made at the time. I attended the 1962 A.M.U. meeting in St. Petersburg, Florida, and had such a wonderful time that I worked my vacations around A.M.U. meetings for some eight years. Oh yes, I figure that I understood 85% of what they were saying that first year! I also discovered that I could learn additional vocabulary by sitting next to a graduate student during a lecture and asking questions afterward. Not one was ever annoyed!

Over the years I collected everywhere I could, purchased some shells at NYSC auctions but more at the "bargain table", and got a lot of lovely shells as presents from people I met at the shell club and A.M.U. meetings. I was interested in putting together a study collection rather than a showy collection, although I did have a lot of pretty shells. I ended up with representatives of most families. (No, Fred, I never got a *Pleurotomaria*.)

Along the way, I discovered that I was as interested in the animals and how they lived as I was in the shells. After two weeks at the Audubon Camp of

Maine around 1967, I even had a name for that interest: Ecology. Only later did "ecology" become a buzzword for "conservation". In 1968 I married Bob, moved to Nassau County and "retired" from banking. I did not really have more time for the shells, but I did join the young Long Island Shell Club. The trip from Seaford to the American Museum of Natural History in New York for the New York Shell Club meetings was just too much. Bob and I collected wherever we went, but from 1970 to 1988 we vacationed in Vermont, and my collecting was increasingly freshwater material. I got to only a few A.M.U. meetings then, mostly while I was Secretary of the A.M.U. Bob retired from banking in 1984, and the only marine shells I collected after that were on an Elderhostel trip to Polynesia in 1990.

In retirement we were doing many things together that both of us thoroughly enjoyed, and I had no time to "play" with my shells. I searched for a place that could really use them, and Rider College turned out to be the perfect place. I still have all the freshwater shells and a good number of the land snails. I certainly will miss not having the marine shells, but the good feeling I have, of knowing that Marine Science students will use them, more than makes up for the loss. There are over 1,000 named species in the donated collection. The 5,000-plus lot catalogue includes a number of unidentified species and many tiny shells from dredgings.

Although the marine shells are gone, my interest in shells and marine life is still strong. For example, the trip to Polynesia was my first chance to walk on a live coral reef. Through years of lectures, slides and movies, I knew pretty much what to look for, and understood most of what I was seeing. I saw so much more than my fellow-hostelers did! My world will always be more interesting because of my hobby.

And then there are all those non-marine shells downstairs......

COMING SHELL SHOWS AND EVENTS (See December NOTES for March & April)

March 25 - The American Littoral Society will hold its Annual Symposium in the main auditorium of the American Museum of Natural History in Manhattan. Lectures will include "Of Whales and Men" with Richard Ellis and "The Oceans" with Sylvia Earle, chief scientist for NOAA. Time - 7:30 p.m.; Cost - $10.00. For tickets, write to American Littoral Society, Highlands, New Jersey 07732

May 10 - The Belgian Society for Conchology will hold its 2nd International Shellshow at the Damian Institute, Aarschot, Belgium

July 26-31 The Conchologists of America will hold its 20th anniversary convention at the Sawgrass Mariott Resort complex, Ponte Vedra Beach, Florida, just south of Jacksonville. In addition to the regular program of slide talks, symposia, field trips, Dealer's Bourse, and banquet, there will be a mini shell show and shell identification. The banquet speaker is scheduled to be Russell Jensen, well known to collectors from his many years at the Delaware Museum of Natural History. The Jacksonville Shell Club is known for its hospitality and excellent shell shows, so we can look forward to an outstanding COA convention. Details will be in the March issue of AMERICAN CONCHOLOGIST and will be in the June NYSC NOTES.

August 2-7 The Annual meeting of the American Malacological Union will be held in Sarasota, Florida. Details will follow as we are advised.

THE PAPER NAUTILUS

Vivienne Smith

Phylum - **MOLLUSCA**
Class - **CEPHALOPODA** Cuvier, 1797
Family - **ARGONAUTIDAE** Rafinesque, 1815

> "Light as a flake of foam upon the wind,
> Keel upward from the deep emerged a shell,
> Shaped like the moon ere half her horn is filled,
> Fraught with young life, it righted as it rose,
> And moved at will along the yielding water."
> James Montgomery in "Pelican Island"

The Class CEPHALODODA includes octopuses, squids, nautilus, spirula, and sepia squids. The **Argonaut** is a pelagic octopod, and there are fewer than a dozen species. It lives in the warm, open seas of the world. It has been reported to depths of 11,000 feet, but frequently swims near the surface of the sea.

The female is the only modern octopus to have an "external shell"; which is pearl white and parchment-like. The dorsal arms of the female are broadly expanded (greatly enlarged and paddle-shaped) into glandular membranes. They secrete calcium carbonate, resulting in a delicate, calcareous structure; and this enlarges the shell along its margin. With these "paddles". the female holds the shell in place around its body. The shell can be used as a retreat, a buoying chamber, and also a place to keep the eggs. If the female were to lose its shell, the animal would drop to the ocean bottom and die. The female can be over a foot in diameter.

The male Argonaut is considerably smaller than the female, does **not** have a shell, and the 3rd arm is modified into a detachable copulatory organ which persists separately for a certain length of time in the mantle cavity of the female. The family of Argonauts show some of the greatest examples of dimorphism - - the male being 1/2 to 1 inch long, while the female, as mentioned above, can be over one foot in diameter. The male is one of the two smallest cephalopods in the world. It has a globular body and eight arms which are lined with suckers. They swim by jet propulsion using a siphon, or funnel.

This shell was named "nautilus", (which means little sailor), by Aristotle, because the paper thin shell looks like a sail. Later, when the chambered nautilus was discovered, "paper" was added to the word "nautilus" in order to make a distinction between the two. Linnaeus changed the name to ***Argonauta argo*** to honor the Argonauts of fable who sailed with Jason in the Argo in search of the Golden Fleece.

It was not until 1839, when the Argonauts were observed in an aquarium by Mme. Jeanette Power, that the truth evolved. By studying them over a long period of time, Mme. Power noted that there were certain of the eggs that began to form shells with secretions from glands in a pair of webs that spread out from the ends of the two rear arms. This delicately sculptured shell was keeled in the middle, and had paralleled ridges as new sections were added. The animal rested in the mouth of the shell, which grew with it, and grasped the shell tightly with the two webbed arms. Upon reaching maturity, they were seen to lay eggs. Well, they now knew about the female - - but how about the male?

Earlier, in 1800, there were small "worms" observed to be present in the mantles of the female. These were named hectocotylus (which means "arm of a hundred suckers") because they resembled the arm of a cephalopod. Albert Kollikers, a Swiss zoologist, came close to the real truth, but he claimed the "parasitic worm" was the real male Argonaut.

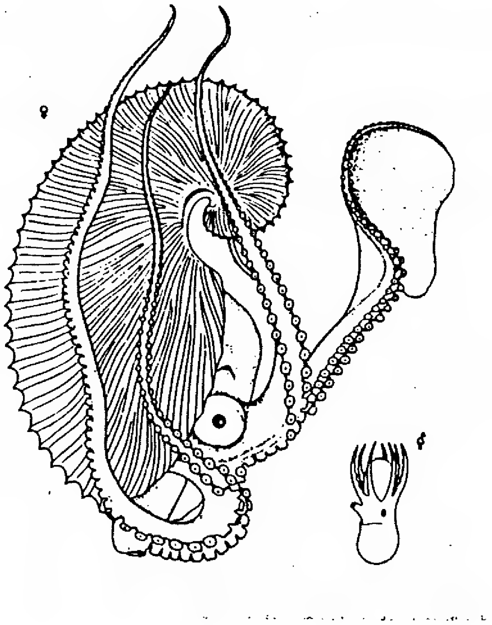
In 1853, Heinrich Muller, a German zoologist, had opportunity to study some very small Argonauts in an aquarium. Coiled in a sac hidden among the arms was a "hectocotylus". These were the real male Argonauts - about 1/2 inch long - and the mystery was solved. The size of a male and female Argonaut could be compared to a pea and a basketball.

When activated, the hectocotylus (which stores sperm), will extend to about 5 inches (about ten times the length of the male animal) and then breaks away from the arm on which it has been growing. It swims, totally on its own, until it finds a female and anchors itself in the female's mantle cavity. This may be an old theory, because it is now claimed that the arm of the male (hectocotylus) lacks any sense of direction.

The Argonaut feeds upon small fishes and sea butterflies, which are pteropods (planctonic mollusks). It is preyed upon by pelagic fishes such as tuna, dolphin fishes, and billfish.

The Argonaut ejects an ink to distract predators. Also, color patterns serve as an excellent camouflage for animals swimming near the surface of the sea.

Oceanographic conditions, such as storms or storm currents, can sweep many pelagic animals in shallow reef areas; but normally the Argonauts are non-schooling, solitary animals.



From *Cephalopods of Hong Kong* by G.L. Voss and G.R. Williamson

Drawn to scale - Lt. Female, Rt. Male

Familiar Argonauta species are:

Argonauta argo Linnaeus, 1758
Argonauta gruneri Dunker, 1852
Argonauta hians Lightfoot, 1786
Argonauta nodosa Lightfoot, 1786
Argonauta nouryi Lorois, 1852

****

Literature Cited

Abbott, R. Tucker, "American Seashells", 1954, 1st Ed., Van Nostrand
Abbott, R. Tucker, "American Seashells", 2nd Ed, Van Nostrand Reinhold
Cox, James A., "Shells, Treasures from the Sea", Larousse & Co., N.Y.
Dance, S. Peter & R. T. Abbott, "Compendium of Seashells", 1st Edition
Iliffe, Thomas M. "Octopus in a Parchment Shell", Sea Secrets, IOF, July-Aug., 1982.
Saul, Mary, "Shells", 1974, Doubleday & Co.
Solem, G. Alan, "The Shell Makers", 1974, John Wiley & Sons.
Voss, Dr. Gilbert, Sea Secrets, IOF, Jan. - Feb., 1986.
Wu, Norbert, "The Paper Nautilus", Sea Frontiers, IOF, Mar. - Apr., 1989.

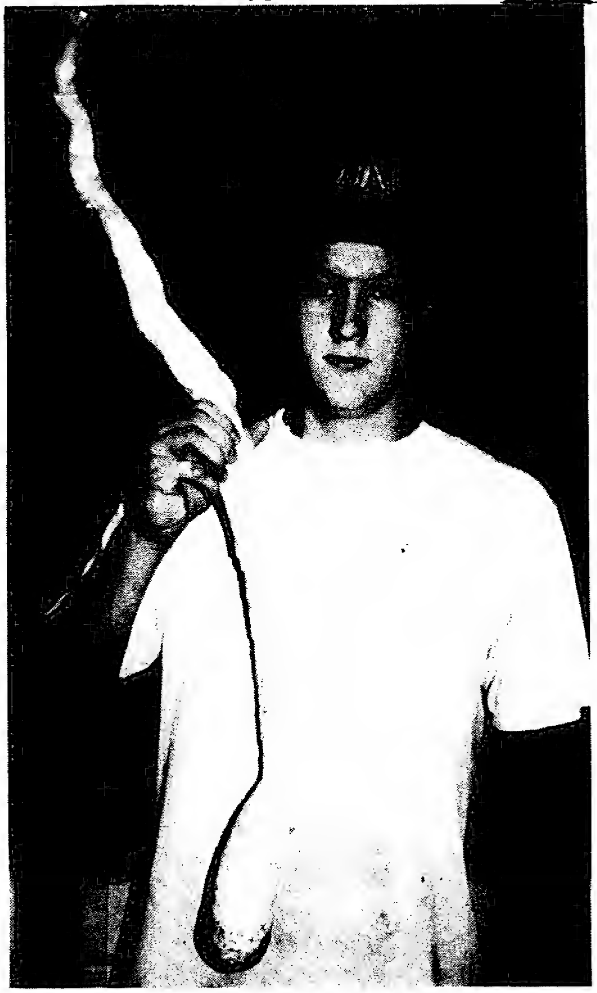
Reprinted from The Junonia, October, 1991
(Newsletter of Sanibel-Captiva Shell Club)

XRAY CONCHOLOGY (Kuphus polythalamia Linné, 1767) by Harry G. Lee

Over the years, several shell enthusiasts have applied Xray techniques to allow a better understanding of the structure of molluscan shells, but the following account may be one of the few in which shells were captured on film from a characteristic niche, but were invisible to the naked eye.

At least a few of us are familiar with the "stove-pipe" shell, a long irregular to nearly rectilinear shelly tube which may reach nearly six feet in length. Over the course of my shelling experience, various luminaries have written accounts of this natural history object with widely variant degrees of veracity. Some popular articles attribute this tube to a giant gastropod "worm-snail" (example Vermiculariidae or Vermetidae), others to a worm (?Annelida). In fact the author of the scientific name, Serpula polythalamia Linné, 1767, place it in a genus with an annelid worm, and in 1758 thought it was conspecific with a vermetid (worm-snail), a true mollusk.

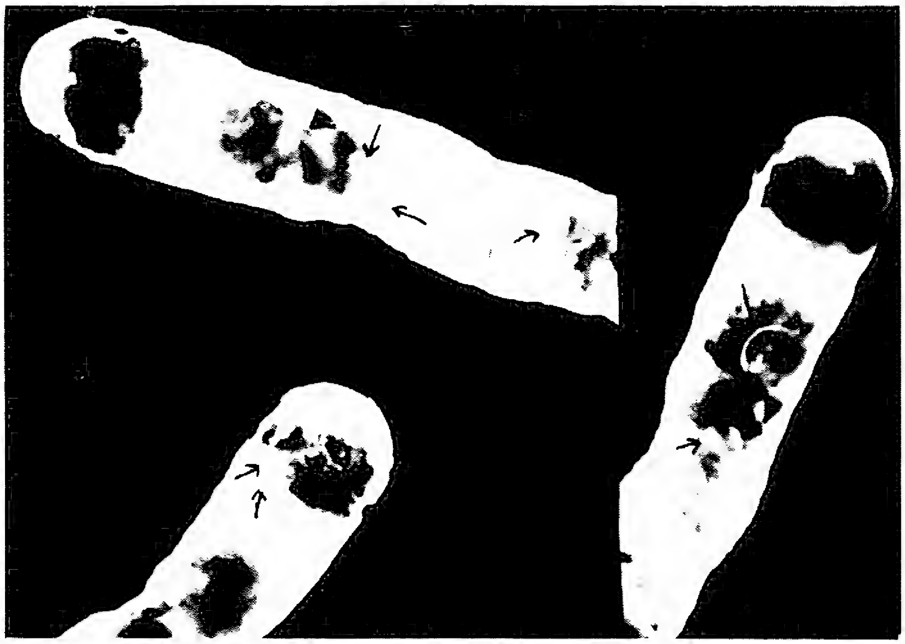
For many years a solitary, intact, alcohol-preserved specimen of this creature, collected in the Solomon Islands, reposed in London's British Museum (Natural History). Almost 30 years ago Dr. Ruth Turner broke it apart and extracted the animal. In 1966 she reported her findings in an extensive monograph on shipworms (Teredinidae) - the benchmark work on the group. The anatomic features allowed her to hypothesize that Kuphus was the most primitive of the shipworms. She learned that the habitat was the mud of mangrove swamps in the torrid S.W. Pacific. Because of the lack of ridges on the anterior margin of the shell, she deduced that the animal was incapable of burrowing in wood. Based on these perspectives, she hypothesized that the ancestral shipworm was probably a mud-dwelling burrower more akin to Kuphus than any other surviving member of the Teredinidae.



Author's son (6'1") with specimen described herein.

Dr. Turner didn't describe the tube of Kuphus extensively. Let me tell you what I have observed. Until recently very few intact specimens were available to collectors. In 1991 two shell dealers on Sanibel, Larry Strange and Al Deynzer, have gotten "good" specimens of this natural history object from the Philippines. An intact specimen in my collection measures 40 inches in length. It slowly tapers from the 4 1/2 inch diameter closed rounded anterior end to a septate open posterior end which is subovate and about 1 1/2 inches across (see illustration). It is through this pair of openings that the animal extends its inhalant and excurrent siphons - each of which shares the aperture with a specialized set of "pallets" (like all other shipworms) used to close the openings in the tube when the siphons have withdrawn - as with environmental threat.

One of the fun things related to "shell" study is getting new perspectives on the critters. The accompanying photo shows three views of my Kuphus tube (much reduced). By shaking and twisting the specimen, I was able to position the shells (trapped inside after the animal's demise) in various poses. I will let Dr. Turner reconstruct the 3D appearance of these shells, which measure slightly over 1 inch in maximum length.



Xray of anterior end of Kuphus (3 views)

Ref: Turner, R.D. (1966)
A Survey & Illustrated catalog
Teredinidae (Mollusca: Bivalvia)
Museum of Comp. Zoology,
Cambridge.

Adapted from the original article that appeared in The Jacksonville Shell Club's Shell-O-Gram 32 (5), September-October 1991.

Growing Scallops in the Lab by Terry Tomalin

The fertile sea-grass beds off Crystal River, Florida are known for scallops. Some years, like 1990, there were plenty of the tasty mollusks to go around. But other years, like 1991, the crop is nothing to brag about.

You can't say the scallops aren't trying. They are prolific breeders - a single animal can produce a million eggs. The scallops are often just victims of bad luck. Their larvae spend the first 10-14 days floating around with other, often predatory, miscroscopic organisms. And if a sudden storm just happens to sweep across the grass flats, next year'sscallop crop can easily be washed out to sea during their critical period of larval development.

But fortunately for scallop lovers, scientists know how to raise scallops in the lab. They grow very fast, so that in less than a year you can have a harvestable scallop. Researchers from China have taken great strides in the aquaculture of scallops. Ten years ago, these scientists visited the United States and returned home with 14 scallops. Today, the Chinese scallop farm produces nearly 4 billion scallops.

Last October, Dr. Norm Blake of the University of South Florida, using knowledge gathered from the Chinese experiments, successfully spawned millions of scallops at his lab at the Bayboro campus. Nurturing the larvae on a liquid alga mixture, similar to what they would feed on in the wild, the young scallops were about one-quarter the size of the head of a pin after 45 days. The scallop spat had attached themselves to strips of black plastic that resembled the turtle grass the animals would normally cling to in the wild. The spat-covered strips were separated into 15 mesh bags and staked offshore in about 5 feet of water. The results of this experiment may help to reseed the Gulf of Mexico so that there may eventually be scallops in number in the Gulf.

(from an article in the St. Petersburg Times, ex Dot Germer)

MY PERSONAL INVOLVEMENT IN SHELLING AND MALACOLOGY

by Walter Sage, American Museum of Natural History

Preface: Amateurs, and we are all that to some degree, can and do make great contributions to malacology, and that is really what we should be about, not merely amassing large quantities of shells. I think we all have something to contribute, and should give as much as we get out of any endeavor.

My first contact with shells came when my fifth grade teacher gave me a shell I later learned was Lambis lambis. As I remember the specimen, it was worn and had some broken "fingers", but she obviously valued it, and I was thrilled to have it all for myself. I sometimes wish I still owned this shell, but I gave it away some years ago to another child who also found it fascinating.

My interest remained dormant for three years, until I saw and then purchased a set of A. Gordon Melvin's Seashell Ed-u-Cards, and began to buy small amounts of shells from Lorna Melvin of West Newton, Massachusetts. I remember poring over the lists and studying books, all in order to select a small group of shells to purchase. I recollect that it was a special day when I had as much as $5.00 to spend - and how I worked to get as many shells as I could for that very modest amount. I would study the books available then, and try to know what I was getting. It was great fun learning about shells and mollusks.

At the time I lived in Louisville, Kentucky and didn't know anyone else who collected shells. When I learned in 1970 that the Louisville Conchological Society had been founded the year before, I joined and began to study in earnest and to share what I had learned with others. The shell club in Louisville was an important part of my life, and I became President of LCS and then was newsletter editor for several years.

Merely collecting shells soon was not enough for me, and began buying as many books as I could, trying to build the foundation for a broader knowledge of land, freshwater and marine shells. I met many collectors from many cities, and collected land and freshwater mollusks in various Kentucky localities. I began corresponding with many amateurs and professinals and took the next step in broadening my interests when I attended the 1973 meeting of the American Malacological Union in Delaware. There I met Dr. William J. Clench and Dr. R. Tucker Abbott and we became good friends. These friendships grew through visits to Bill Clench in Dorchester, MA and to Tucker Abbott in Delaware and then in Florida. I remember fondly the week I spent in 1978 with Tucker and Cecelia Abbott when we put together hundreds of copies of the third edition of Wagner & Abbott's Standard Catalog of Shells.

In 1980 I served as the local chairman and host of the American Malacological Union meeting that met in Louisville, Kentucky. Everyone who attended that the meeting was held in the hottest summer on record in Louisville, but despite that problem, the meeting went very well. I was in the middle of finishing college at the time, and was also deeply involved in The Littorina, the newsletter of the Louisville Conchological Society. I was also beginning to keep track of the descriptions of new species of mollusks, an endeavor that led to my being on the editorial staff of Hawaiian Shell News. I still pay attention to papers describing new mollusk species, but these have become so numerous in recent years that it is just not possible to stay current. I continued to purchase as many books on mollusks as I could, and began writing book reviews to attempt to alert others to the availability of these publications.

My involvement with mollusks took another turn in late December 1982 when I was invited by Tucker Abbott to come to Florida the next month and help ready and mail his Compendium of Seashells. I at once accepted and spent ten days helping with the mailing of 2200 copies of this book. Tucker had also to me of the trip around the world that he and Cecelia were thinking of making, and he asked if I could come down and spend three months at their home and take care of his business, American Malacologists. Of course, I at once accepted, and spent March, April, and May of 1983 in Melbourne, Florida.

Tucker had also told me of the sad and untimely death of Bill Old, who had done so much at the American Museum in New York during a 22 year career. Tucker said he would recommend me for Bill's position, and again I was eager to accept the opportunity to work with the research collections at one of the major museums in the United States. I was interviewed for the position early in May, 1983 by Dr. William K. Emerson, Curator of Mollusks at AMNH, and by the end of that month was informed that I was hired and could begin work as soon as I was ready to come to New York. So when the Abbotts returned from their trip the end of May, I came to the New York area and found an apartment in Garfield, New Jersey, returned immediately to Louisville to pack up my belongings, and returned to New York, beginning work at the American Museum on June 13, 1983. I have been employed here at AMNH for almost 9 years, and at times it seems like I started only yesterday. The job still is interesting and worthwhile, and even the routine work is rewarding. Dull moments are very few and far between.

My job as Senior Scientific Assistant involves taking charge of all aspects of the care of the collection of Recent mollusks. I handle correspondence, loans, processing of new acquisitions, including unpacking, sorting, accessioning, cataloging, and incorporations the specimens into the existing research collections. Working with the excellent team of volunteers we have assembled is one of my pleasures, and it is certain that without them we would have accomplished much less over the last several years. I also assist Dr. Emerson with research, greet visitors to the collection, and handle many sorts of inquiries.

I have become active in both the New York and Long Island shell clubs and have enjoyed the intellectual stimulation resulting from continued contact with shell collectors. In the summer of 1985 I took the job of treasurer for the Conchologists of America, and serve in that capacity to date. This job, which takes a large part of my "free time" has also been interesting and rewarding. This job and involvement in the local clubs resulted in my co-chairing the 1991 convention of the Conchologists of America, held on Long Island last July.

As I look back on the past few years, I am reminded of many things - meetings held in various cities, collections I have visited, the many good friends I've made, the fun times and learning experiences I've enjoyed, and the great progress that has been made with the American Museum mollusk collection. I look forward to many more years of working to improve the collection here, and to foster cooperation between shell collectors and professionals. I encourage everyone interested in mollusks to learn as much as possible and to share those interests with others. It IS possible for each of us to make a difference in our areas of expertise, but only by sharing with others and broadening our horizons by being receptive to all opportunities that come our way.

(adapted from an account printed in Thatcheria 20(3), March 1985

Massachusetts shellers spend the day "Down in the Dumps" (M. LaFosse)
An account in an undated issue of the Boston Malacological Club's newsletter The Epitonium gives details of an outing to a scallop dump at Wareham, MA. A total of more than 20 species was taken, including *Epitonium greenlandicum*, *Placopecten magellanicus*, *Buccinum undatum*, *Neptunea decemcostata*, *Buscycon carica*, *B. canaliculatum*, *Colus stimpsoni*, *C. pygmaeus*, *Argopecten irradians*, and less frequently *Chlamys islandica*. It must have been a wonderful day!!

Pleurotomaria - 225 million years of Perseverance?

by Tom Pain, Pallidula 21(3), British Shell Collector's Club)

Living pleurotomariids or slit shells provide a rare glimpse at the biology of remnants of a primitive and predominantly Paleozoic group of gastropods, which first appeared in the Triassic Period some 225 million years ago. The discovery of the first living pleurotomariids (quoyana Fischer & Bernardi, 1856) caused as much scientific excitement then as did that of Neopilina galatheae (Lemche, 1957) a hundred years later.

Because of their rarity, large relative size as gastropods, striking form and colour patterns, and restriction to small habitat islands in the deep sea, they have caught the imagination and interest of amateur and professional conchologists alike.

In spite of the fact that there are now some 16 described living species and their populations sizes are probably greater than was at first estimated, Pleurotomaria are still poorly understood biologically. The question of how and why they have survived total replacement [in shallow seas] by alternative gastropod evolution is of much interest and remains an intriguing problem.

The shell of Pleurotomaria is typically dextral, conispiral, and trochoid in form, with a flattened base that may be either umbilicate or imperforate. The most conspicuous feature of the shell is the prominent deep labral emargination or lit in the outer lip at or near the middle of the body-whorl and the selenizone (slit-band or fasciole) or spiral trace of the slit on the shell. This slit is of particular anatomical significance since it reflects the primitive gastropod condition (and original molluscan organization) of paired bipectinate ctenidia [gills] in an elongate, deep mantle cavity. This slit is functionally the site of elimination of the paired convergent exhalant streams of water flowing through the mantle cavity.

Shell sculpture mainly consists of a combination of closely spaced spiral and axial ribs that intersect to form a cancellate pattern, frequently forming small raised beads. Pleurotomariids tend to be brightly coloured, usually with irregular blotches of reddish pigments on light coloured grounds. Similar patterns are reported from Cretaceous Pleurotomaria (Kanie et al 1980). The size of adult shells ranges from moderate to large, with one of the living species, P. rumphii Schepman, 1879 attaining a diameter of 190 mm. Bayer (1965) illustrates and discusses 14 of the living species and is the best source of data on comparative morphology.

The initial discovery of "living" Pleurotomaria was in fact only a dead shell that found its way into a fish trap via a hermit crab occupant (Dance, 1969). Subsequent specimens containing animals provided the basis for early anatomical observations by Dall, Fischer and others. The best anatomical descriptions to date are those of Fretter (1964, 1966) who examined and compared three western Atlantic species. She found the major important anatomical features to be identical.

The operculum of Pleurotomaria is chitinous and is remarkable for its small size relative to the aperture. The size is related to the fact that the animal retracts deeply into the shell and closure occurs well behind the slit.

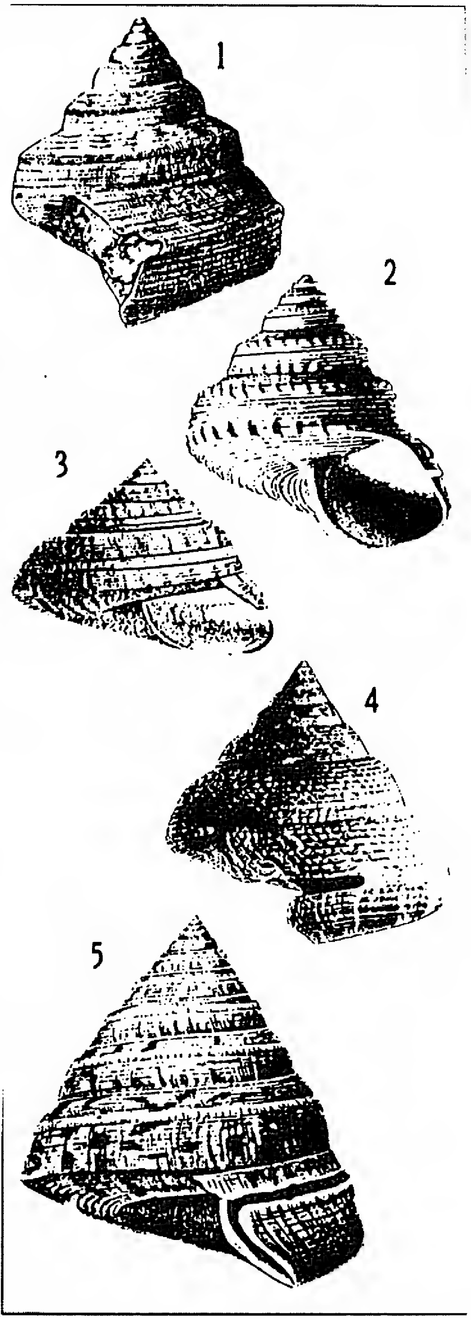
The pleurotomariids have a rhipidoglossate radula that characterizes most of the primitive gastropod families grouped within the Archaeogastropoda. This radula is divided into three major fields of food-preparation and food-gathering teeth - a central field of robust rachidian teeth and lateral teeth, with two fields of marginal teeth on either side.

The important thing about the radula of Pleurotomaria is that it has very little in common with that of other living gastropods. Although highly specialized it appears to represent a variation on rhipidoglossan design that was established early in gastropod evolution. Little is know about phenotypic variation in living pleurotomariid populations, but most species show little variation in any aspect of shell morphology.

The genus Pleurotomaria De France, 1826 first appears in the Jurassic (Sinemurian) of England, based on the trochiform Trochus anglicus J. Sowerby, 1818. Because the shell of the type is nodose, numerous names have been proposed for post-Jurassic, non-nodose taxa. These, based on differences in shell characters, have been assigned to the genera Perotrochus Fischer, 1885; Entemnotrochus Fischer, 1885; and Mikadotrochus Lindholm, 1927. Some 1500 species of pleurotomariacean taxa have been described, most of which are Paleozoic. Around 85 species are known from the Cenozoic, mostly from the Eocene.

Pleurotomaria live below the level of primary production and the gut contents indicate that they obtain nutrition primarily from animal sources. It is not however a specialist carnivore in an active predatory sense, but rather a generalist "grazer" on sessile animal turfs, such as sponges, hydroids, tunicates, gorgonians, etc. It is the only large, mobile, epifaunal invertebrate in some of these bathyal habitats.

The living species are narrowly restricted to islands of firm substrate in the deep sea, but they are never found in turbulent environments where suspended fine sediment concentrations are high. There is no basis for believing that the living Pleurotomaria have retreated to deep water or are hanging on in the modern world in a poorly adapter state. On the contrary, they represent a classical example of success through perseverance!



1) Bathrotomaria veticulata (J. Sowerby) - Upper Jurassic, England; 2) Pleurotomaria anglica (J. Sowerby) - Lower Lias, France; 3) Perotrochus quoyana (Fischer & Bernardi) - Recent, Caribbean; 4) Mikadotrochus beyrichi (Hilgendorf) - Recent, Japan; 5) Entemnotrochus adansoniana (Crosse & Fischer) - Recent, Caribbean.

REFERENCES:

Bayer, F.M. 1965. New Pleurotomariid gastropods from the western Atlantic, with a summary of the recent species. Bulletin of Marine Science 15:737-796.
Dance, S.P. 1969. Rare Shells, London: Faber & Faber.
Fischer, P. & Bernardi, A.C. 1856. Description d'un Pleurotomarie vivant. Journal de Conchyliologie, Paris 5:160-166.
Fretter, V. 1964. Observations on the Anatomy of Mikadotrochus amabilis Bayer. Bulletin of Marine Science 14(1):172-184.
Fretter, V. 1966. Observations on the anatomy of Perotrochus. Bulletin of Marine Science 16(3):603-614.

THE DIRECTORY OF CONCHOLOGISTS

LISTING IS FREE!

We plan to publish this new Directory in late 1992. It will contain names, addresses and interests of those people, around the world, working on various aspects of shells or mollusks - be they professional, advanced amateurs or beginners. We hope this will facilitate specimen and information exchanges and enable those interested in similar subjects to correspond with one another. We hope you will participate by filling out and returning this form. Please feel free to duplicate this form and pass it to others you feel should be included in the Directory.

Tom Rice, Editor
P.O. Box 219
Port Gamble, WA 98364 U.S.A.
(Of Sea & Shore Publications)

Please type or print your information.

NAME ....

ADDRESS ....

....

TELEPHONE NUMBER (Optional) ....

I have checked the following areas of conchology in which I am interested: __ all mollusks; __ marine mollusks; __ terrestrial mollusks; __ freshwater mollusks; __ fossil mollusks; __ specimen exchange; __ information exchange; __ specimen purchase; __ selling specimens; __ photography; __ shellcrafts; __ shell art; __ micro mollusks; __ color forms; __ freak mollusks; __ habitat studies; __ anatomical studies; __ mollusks on postage stamps; __ crustaceans; other invertebrates:

I am especially interested in the following FAMILIES: __ Conidae; __ Cypraeidae; __ Muricidae; __ Volutidae; __ Pectinidae; __ Terebridae; __ Strombidae; __ Mitridae; __ Unionidae;

Other families: ....

....

Comments or Additional Information:

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
289 W. 11th St.
New York, NY 10014
212-929-7430

Vice President

IRVING HOPPENWASSER
1834 W. 9th St.
Brooklyn, NY 11229
718-449-0244

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, LARRY POTTER, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of the NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for a fiscal year beginning each September; full membership is $6.50 per year, $2.00 additional for each of other members of the same family - with one copy of the NOTES per family; corresponding membership is $5.00 per year in the United States, $6.50 overseas paid in U.S. currency.

The Treasurer - Membership Chairman should be notified promptly of any change of address.

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETING DATES - 1991 - 1992

Please consult the current edition of the NOTES for confirmation of meeting dates and places.

1991	Sept. 8	Rm. 319	1992	Feb. 9	Rm. 319
	Oct. 6	Field trip		March 8	Rm. 319
	Nov. 10	Rm. 319		April 12	Social/Auction
	Dec. 8	Rm. 319		May 10	Rm. 319
1992	Jan. 12	Rm. 319		June 14	Rm. 319

Meetings are held the second Sunday of each month, September to June, except that the October meeting will be a field trip on the first Sunday in October.

Except as noted, meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City. On meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

NEW YORK SHELL CLUB NOTES No. 323 June 1992 Page 1

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History, New York City (unless advised otherwise). Please present your membership card for admission to AMNH for meetings.

PROGRAM SCHEDULE

SUNDAY, June 14, 1992, at 2:00 p.m.

The Unspoiled Solomons - Carl Ehrlich

To help celebrate the successful club year and join in fellowship at its close, we invite you to meet for lunch before the meeting. We will gather at the restaurant at the American Museum at noon. The deadline for reservations will be Wednesday, June 10. Please call Al Scarpetti at 929-7430 to be included.

CONTENTS

		Page
Highlights of Recent meetings	Milton Werner	2
New York Shell Club Dues		2
1992 Summer and Fall Shell Shows and Meetings	Donald Dan	3, 4
Finding *Hexabranchus sanguineus*	David K. Mulliner	4
Ovula ovum	Sylvia Dominey	5
The Wonderful Desert	Hal Gregory	6, 7
Book Review - Guidebook to Pecten Shells ... of the World by A. Rombouts	Walter Sage	8
RUTHENICA - a new mollusk journal	R. Tucker Abbott	8
Diving in a Sub for a *Pleurotomaria*	Constance E. Boone	9-11
Sanibel Shell Museum Ground Breaking Ceremonies Scheduled		11
Haminoea solitaria (Say, 1822) in New York	Dorothy Raeihle	12
First Shell	Dorothy Raeihle	12, 13
Giant African Snails Recently Introduced into Florida Pet Shops		13
New York Shell Club 1992 Social/Auction		14
Reminiscences - NYSC 1958 Auction/Social Meeting		15
Amway's "Redu" - a Cure for Rust-Stained Shells	Larry Buck	15
Beach Combings	Dave Grant	16-18
Which One Is It?	Margaret Thorson	19-22

Report of the Nominating Committee, Milton Werner, Chairman

In accordance with the New York Shell Club's constitution, full members will vote for the 1992-93 officers at the club's regular meeting on June 14.

The following slate is proposed:

President	Al Scarpetti
Vice President	Larry Potter
Recording Secretary	Milton Werner
Treasurer	Theta Lourbacos

Directors: Fred Cannon, Allen Aigen, Edward Cowles, Walter Sage

Additional nominations may be made from the floor.

Your editorial staff takes this opportunity to thank everyone for all assistance provided this year. We especially thank those whose articles we shared with you, including those reprinted from other publications - you're all great!

HIGHLIGHTS OF RECENT MEETINGS

March 8, 1992: The speaker for the day was Hank Foglino, of the Long Island Shell Club, whose subject was Oceanography. Hank noted that he has a degree in electrical engineering and an MA in oceanography, and he observed that anyone finishing school today whose scientific training is in oceanography alone might find no market for his abilities. Hank feels that the right approach starts with a degree in biology, chemistry, physics, or geology, aimed at application in oceanography. His training was so aimed when his employer, Grumman Aerospace, assigned him to study the possibility of locating schools of fish or beds of clams using submarine-finding technology or any other, from airplanes, satellites, or whatever.

Starting with a series of charts and graphs, Hank reviewed the major phenomena of the world's wide waters, such as currents, tides, wave action, temperatures and depths. He then showed photographs and diagrams of several manned and robot deep-sea submersibles, describing how and when they were used, and by whom. Hank's program was thoroughly enjoyed by all.

The door prizes were an Oliva maura, won by Dr. Walter Jacobs; a Conus purpurascens, won by Chuck Hirschberger, and a Murex anatomicus, won by Eli Horowitz.

April 12, 1992: The 406th meeting of the New York Shell Club was our annual auction and social gathering, held at Dorothy Jensen's Broadway Dance Studio, Astoria, Queens. Auctioneer Sol Weiss, assisted by Walter Sage, knocked down more than 150 items of shells and related books and artifacts.

The most avidly contested shells were a Pleurotomaria hirasei, 3-3/4", that brought $72; Argonauta nodosa, 6", $42; Cypraea isabella, $42; Conus armadillo, 2-7/8", $35; Gaza superba, 1-1/2", $34; Conus aemulus, pair, 1-3/8", $32; Xenophora robusta, set of 3 to 2-1/2", $31; Liguus fasciatus testudineus, $30; Murex burnetti, 3-1/4", $30; Strombus thersites, 5", $26; Liguus fasciatus pseudopictus, $26; Pleuroploca gigantea, 14", $24; Murex bednalli, orange and white, 2-7/8", $24; and Conus amadis, pair, 4", $24. A shell painting ably executed and donated by Al Scarpetti, brought $24.

The sale, or bargain, table, did a lively business. The refreshment tables, offering wine, punch, coffee, cake, cheese, cold cuts and crackers were much visited throughout the day. Activities drew to a close at about 5 p.m. See page 14, this issue, for further details and words of appreciation.

NEW YORK SHELL CLUB DUES

The officers and directors have discussed the financial status of NYSC, and present the following information to our members. First, as we are all aware, the cost of almost everything has increased in the last few years: for NYSC the sharpest increase has been in the cost of producing and mailing the NOTES to our members four times a year. For 1990-91 the cost of printing and postage was $1,334 while the income from dues was $732. Although we have been successful in raising additional funds by our annual social/auction, a steady yearly income of members' dues is important to maintain NYSC functions. It should be noted that there has not been an increase in our dues in the last 10 years.

As required by our By-Laws the following amendment is proposed, to be voted on by the membership at the Annual Meeting in June:

RESOLVED: That New York Shell Club annual dues be the following, effective September, 1992:

Full member, individual	$ 9.00 per year
Full members, family	$11.00 per year
Corresponding member	$ 7.00 per year
Overseas member	$ 9.00 per year

Violet Hertweck

The March issue of AMERICAN CONCHOLOGIST announces the death on December 16, 1991 of Violet Hertweck, widow of Charles Hertweck of Venice, Florida. The Hertwecks were knowledgeable and active shell collectors and exhibitors, well known in Florida and elsewhere. They held corresponding membership in the New York Shell Club since 1979.

1992 Summer and Fall Shell Shows and Meetings

June 30 - July 3
Western Society of Malacologists Annual Meeting, Monterey, CA
Dr. Henry W. Chaney
Santa Barbara Museum of Natural History
2559 Puesta del Sol Road
Santa Barbara, CA 93105 (805) 682-4711

July 10-12
Hawaiian Malacological Society Shell Show, Honolulu, HI
Hawaiian Malacological Society
P. O. Box 22130
Honolulu, HI 96823-2130 (808) 734-3703

July 18-19
Pacific Northwest Shell Club Show, Gig Harbor, WA
Nunsia Orr
18210 59th Street SE
Snohomish, WA 98290 (206) 481-4223

July 25-26
Keppel Bay Shell Show, Yeppoon, Queensland, Australia
Jean M. Offord
277 McDougall Street
N. Rockhampton, Queensland 4701 AUSTRALIA (47) 283-509

July 27-31
Conchologists of America Convention, Ponte Vedra Beach, FL
Charlotte M. Lloyd
P. O. Box 332
Mayport, FL 32267 (904) 246-0874

August 2-7
American Malacological Union Annual Meeting, Sarasota, FL
Dr. Robert C. Bullock
Dept. of Zoology, Univ. of Rhode Island
Kingston, RI 02881-0816 (401) 792-2372

August 8-9
Townsville Shell Show, Townsville, Queensland, Australia
Von Vandenburg
12 Lillipilli Street
Vincent 4814, Queensland, AUSTRALIA (77) 75-6275

August 15- Sept. 7
Oregon Shell Show, Portland, OR
Maxine Hale
347 NE 136 Avenue
Portland, OR 97230 (503) 644-2020

Aug. 20-22
Jersey Cape Shell Show, Stone Harbor, NJ
Jersey Cape Shell Club
P. O. Box 124
Stone Harbor, NJ 08247 (609) 653-8017

Aug. 22-24 Pacific International Shell Show, Cairns, Qld., Australia
Chris Oates, House of Ten Thousand Shells
32-34 Abbott Street
Cairns 4870, Queensland, AUSTRALIA (70) 51-3638

Aug. 29-30 Gulf Coast Shell Show, Panama City, FL
Jim & Linda Brunner
P. O. Box 8188
Southport, FL 32409 (904) 265-5557

Sept. 19-20 Central Florida Shell Show, Orlando, FL
Henry J. Dominey
700 Tam O'Shanter Drive
Orlando, FL 32803 (407) 894-3033

Sept. 19-20 International Shells & Fossils Bourse, Ottmarsheim, France
Michel Rioual
2 Rue des Vergers
68490 Ottmarsheim, FRANCE 89-26-16-43

Oct. 16-18 Annual German Shell Fair, Bochum, Germany
Michael G. Trippner
Dr. C. Otto Strasse 134
4630 Bochum, GERMANY (234) 412-345

Oct. 16-18 North Carolina Shell Show, Wilmington, NC
Dean Weber
510 Baytree Road
Wilmington, NC 28409 (919) 799-3125

Oct. 31 British Shell Collectors' Club Shell Show, London, England
Kevin Brown
12 Grainger Road
Isleworth, Middlesex TW7 6PQ, ENGLAND (81) 568-8333

Nov. 7-8 Philadelphia Shell Show, Philadelphia, PA
Al Schilling
419 Linden Avenue (215) 886-5807
Glenside, PA 19038 (or 1-800-274-8530, toll free)

(The above listing was kindly provided by Donald Dan, 2620 Lou Anne Court, West Friendship, MD 21794 - phone (410) 442-1242 or 1942). It is good to see so many groups sharing their interests in shells with others.

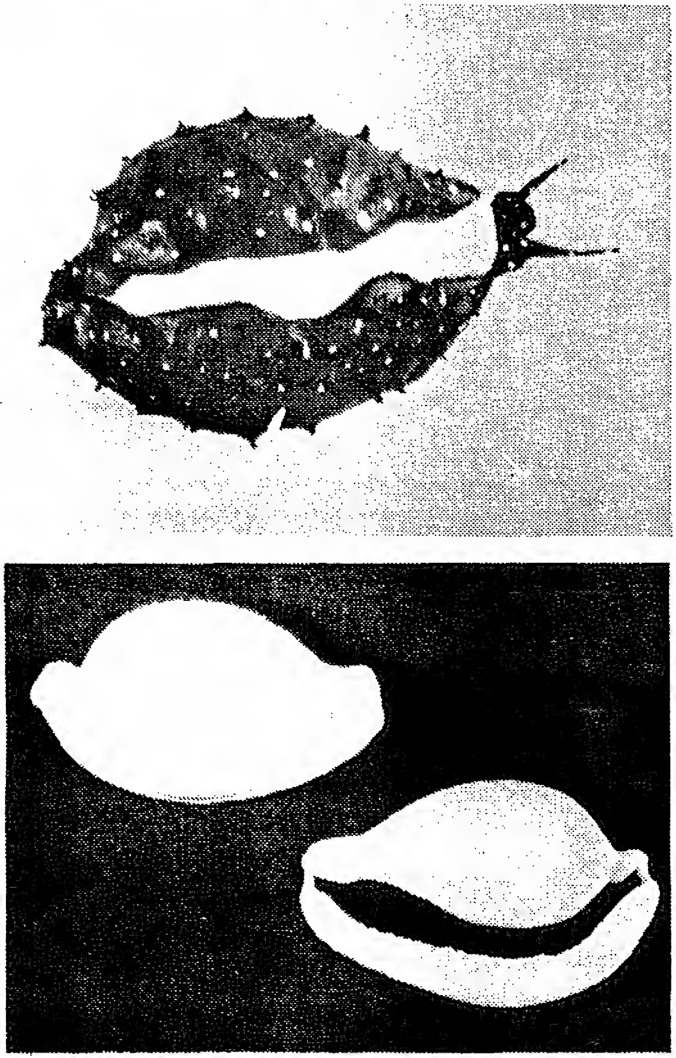
Finding Hexabranchus sanguineus, the Spanish Dancer

by David K. Mulliner

Hexabranchus sanguineus (Ruppell & Leuckart, 1828) is commonly called the Spanish Dancer because of its undulating swimming motion. As it swims, it flexes, flashing the bright red colors of its notum (dorsal surface). The distribution of this species is Indo-Pacific. Most animals are found in shallow water, tide pools to 20 meters. Their size is large, specimens frequently attaining a length of 300 mm (12 inches).

A deep water form has now been found. These animals are 400-600 mm in length (up to 24 inches), unbelievably large for a nudibranch. They are from deeper water (90 meters) and are more subdued in color. [The Festivus, April 1992, p. 42].

Shell of the Month



The Ovula ovum animal model pictured above (model made by Ed Sarkin) is from Bogo, Cebu, Philippines. The picture of both sides of the shell is by Robert Scase.
Animal photo by Jake Dominey

OVULA OVUM
by Sylvia Dominey

Ovulum ovum Linnaeus, 1758, one of the allied cowries, is a species which belongs to the family Ovulidae. Its common name is the Egg Shell or Poached Egg Cowry.

More than almost any other shell in the Indo-Pacific area, this abundant and very striking shell has been used by man in a variety of ways - to decorate his houses and his canoes, to adorn his person and, above all, as a fertility charm. Its reputed magical properties even extending to his crops.

The shell is large (37 to 102 mm), quite thick and robust, has a porcellaneous appearance, elongated-spherical shape. The two ends are very protruded; the posterior one is beaked. The body whorl completely enfolds and hides the preceding ones (convolute). The aperture is smoothly curved over its entire length, quite narrow posteriorly, tending to widen at the anterior. The columellar side lacks both teeth and a callus, but the outer side is folded inward, lightly thickened, so as to form a sort of labial swelling; has a weakly lined surface bearing blunt, coarse, irregularly spaced and not prominent teeth. The total absence of teeth on the inner lip is only one of many characters distinguishing it from typical cowries. The shell is milk white; the inner surface, visible through the aperture, is dark red.

The fleshy mantle of *Ovula ovum* is pitch-black and covered in minute, simple, opaque white, wart-like papillae. The short smooth siphon is the same color as the mantle. The black cephalic tentacles are short and tapered, and the foot is extremely fleshy, smooth and black, with undulated margins.

Developmental biology and behavior within the Ovulidae are poorly documented. Coleman (1983) stated that off Australia the Indo-Pacific *Ovula ovum* deposited 32 spherical 7-mm egg-capsules, separately in rows amongst the folds of its host soft coral (*Sarcohyton* sp.) The eggs of *O. ovum* are not protected by the female as in species of Cypraea and the larvae are planktotrophic. Post-metamorphic juveniles of up to 6 mm in length possess large balloon-like structures on the mantle, the purpose of which is not well understood. It appears that these juveniles mimic toxic nudebranchs of the genus *Phyllidia* (Tien-Hsi et al. 1986:41; herein).

Ovula ovum has been observed living on grey soft corals, *Sarcophyton* sp., growing among scleractinian corals in areas with strong bottom currents at depths from 12 to 20 meters between Sodwana Bay and Kosi Bay, northern Natal. Cernohorwsky (1968: 358) provides records for *O. ovum* from Madagascar through the Indo-Pacific tropics to the Tuamotu Archipelago, Society Islands. The present study extends the distribution range to the southwestern Indian Ocean.

(Information for this article came from: The World of Shells, by Robert Scase and Eric Storey, Simon & Schuster's Guide to Shells edited by Harold S. Feinberg, Cowries and Their Relatives of South Africa by William Rune Liltved, and Cowries (Second Edition Revised) by Jerry G. Walls.

(reprinted from the March 1992 issue, Central Florida Shell News, Orlando, FL)

THE WONDERFUL DESERT

Hal Gregory

Scuba diving off Sanibel and Captiva Islands offers a potpourri of wonderful sights. The so-called desert consists of miles and miles of sand where all kinds of shells, fish, and crustaceans live. This is the land of the predatory shells - where they come and go under the sand as they please. Some seldom if ever come above the surface of the sand except to feed at night. I love to dive at night and watch the shells wandering about on the sand in search of their dietary needs. This is the time, too, when the commercial shrimp are out.

When a severe red tide blooms, it kills these sand shells by the ton. They surface, crawl a ways, making a path you can follow, stop and die. You never see a helmet shell, but after a red tide you find them by the hundreds. The sea worms move in and destroy them very quickly.

This sandy desert has many lime rock ledges. Some of these are mere outcroppings in the sand perhaps ten feet long and a few feet high. Others are a quarter mile long and ten feet high. Not just a few ledges, mind you, but hundreds of them. For the sake of conservation, one has to be careful not to over-dive these ledges. The depth of my personal diving is 70' to 100'. This allows me only 15 - 50 minutes on the bottom - a fact which in itself provides a measure of conservation. Since I love this underwater desert, many of my dives consist only of looking and watching and making notes. I should comment here that the introduction of LORAN allows me to mark the location of a particular ledge so that I can find it again at a later date. I keep a log of what I see and go back and check out a particular location several months later. Sometimes I've observed an egg mass I want to watch. At other times, I've noticed something I cannot identify. I enter it into my log for that dive, and I return later to see if it has grown into an animal I can then identify. Loran makes it possible for me to locate this spot again with only about a 60' error. I do this often to visit places of particular interest to me. I like to check on the growth rate of young shells, the diet of some octopuses I've been watching for years. If it lives in the water, I love to watch it - what it eats, when it eats, how fast it grows, who are its enemies, how far it ventures from "home base", etc. I can use the time for an entire dive just marveling at the colors of the sea anemone. The visibility at this depth and 50 - 60 miles out from the islands is excellent. It is so easy to just sit on a ledge and look. In every direction there is something to see. Beautiful tropical fish, sharks, the wide-open mouth of a grouper or jew fish, anemone, crabs, and lobsters are just a few of the sights. A 10lb lobster is not uncommon. And there is a veritable graveyard of ships - freighters, barges, shrimp boats, charter boats, snapper boats and an assortment of small sport craft. All of this makes for fabulous diving whether your interest is fishing, photography, sightseeing, tropical fish collecting, wreck diving, or even treasure hunting.

My greatest interest is shells, and all of these wrecks, ledges, blue holes, beds of broken shells, huge gardens, and miles of sand are their home. At this depth there are helmets, cowries, junonias, pecten, bonnets, vasum, cones, limpets, murex, oysters, tritons, leafy jewel boxes, clams, huge horse conchs, etc. My own collecting is limited to the *Spondylus americanus, Spondylus ictericus, Lyropecten nodosus,* and to a fascinating Bryozoan, the Texas longhorn. I rate shells on a scale of 1 to 10 and bring in nothing lower than an 8. These I carefully bring home to put in one of my aquariums to observe their growth, feeding habits, behavior, etc.

The depth at which I find the *Spondylus americanus* is 100' or more. There is not a lot of time to find these rascals since diving time is quite limited at this depth. They are very hard to see even in these clear waters because they are so well camouflaged by the various sponges, worm shells, fonz oysters, tube worms and any other type of marine growth that want to call his exterior shell "home". Most of the *americanus* are virtually imbedded in the rock ledges up to their skirts. The spines serve as protection for the rest of the exposed shell. Having located one, I use a long tool with a chisel point to chip away the rock with great care so as not to damage or break the skirt. If the shell is broken, trigger fish are quick to move in and finish him off. You notice that I refer to a Spondylus as "he" or "him". That's because he is such a challenge to me, as the sail fish or tarpon is to the fisherman. In this case it is not his size and strength which challenge me but his camouflage, his firm attachment to a rocky ledge, and the difficulty of working at great depth, without leverage, to release him without breaking his beautiful skirt. I have not only the thrill of the hunt, the challenge of releasing him, but the very great satisfaction also of watching him at close range in my aquarium. I look at him and realize how small he is in comparison to me, but my exhaustion when I climbed into the boat and my bloody hands give testimony to the challenge he presented me. Some of them live for years in my tanks, and only when they die and I clean them do I get to really see the beautiful colors which lie beneath their heavy camouflage.

The same procedures apply to releasing the *Spondylus ictericus.* He lives at a lesser depth, 70' to 100'. He isn't as boldly spectacular as *americanus,* but the variety of colors on one shell is truly amazing. The ends of his spines expand into many points like a spread hand. In contrast to *americanus*, whose shell interior is white, *ictericus* has a ridge of color inside the shell which matches the exterior color. The size of the shell is approximately 1 1/2 to 2" in contrast to *americanus*, which reaches a size of 4".

My third love is the Lion's Paw, *Lyropecten nodosus.* They tell another story of hiding places. They are found in shallow rock pockets on the top of ledges. Their camouflage consists of algae and hard encrusting sponge. They are held in place with heavy gray threads that quite often defy breaking and must be cut with a knife. Shrimp boat nets seldom catch them because the nets ride over these rock pockets leaving the shell safe and sound instead of being broken off by the chains. Once I was served a dinner of Lion's Paws. Their single muscle is very large and tender, the tastiest of all the sea and bay scallops I have ever eaten.

Last but not least is the pleasure of finding the Texas longhorn, *Pylopaguras corallinus.* A certain kind of hermit crab lives inside this Bryozoan, who must keep building a house large enough to accommodate the crab as long as the crab keeps growing. They are great pets to keep in a tropical aquarium, but there must be only one to a tank since they readily kill each other.

When looking for Spondylus, I find many other shells, but for me ,"HE" is the one!

(reprinted from THE JUNONIA, Sanibel-Captiva Shell Club, Inc., February 1992)

Guidebook to Pecten Shells - Recent Pectinidae and Propeamussiidae of the World by A. Rombouts. Edited and revised by Henry E. Coomans, Henk. H. Dijkstra, Robert G. Moolenbeek, and Peter L. van Pel; photographs by P. L. van Pel. 1991. Universal Book Services, Netherlands. xiv + 157 pp., 29 color plates. $40.

This long awaited volume is promoted as ..."the first book since 1888 to cover all recent species of the world. In the family Pectinidae almost 300 (sub)species are treated, of which more than 200 are illustrated. Of the mainly deep water Propeamussiidae, more than 100 species are discussed and the common ones figured. Synonyms are given, many formae are mentioned, and a glossary of terms for the morphology of the scallop shells is added. Since the book is published posthumously, the new genera and species described during the last five years are enumerated in an appendix prepared by the editors. They also produced the references, the index and the 29 colour plates. The illustrations were photographed from representative specimens with locality data of Rombouts' collection (presently in the Zoological Museum, Amsterdam) and some others."

Following an explanatory foreword by Dr. Coomans and an introduction by the author, there are 63 pages of text on Pectinidae, 18 pages on Propeamussiidae, 6 pages of references, 3 pages of new taxa (without references), 51 pages of plates and plate captions, and a 5 page index. This commentator, admittedly not a pecten specialist, would have preferred to have more description and comparison of similar species. I find it difficult to identify specimens using the text - the plates are generally of good quality, and do help in identification. It is a shame that so many species are listed by name and brief description, especially in Propeamussiidae, but not figured.

This book cannot be claimed to be a scientific monograph of the Pectinidae - too many names have been left out, and too many named taxa are unfigured. I would have preferred that the book concentrate on a complete and much more detailed treatment of the Pectinidae and that the Propeamussiidae had been saved for a later companion volume. Copies of the original colour figures of the Reeve and Sowerby species not included in the plates would surely have added to the value of this volume. It would have been preferable to have included the citations for the original descriptions, so that interested persons could do further research. The book would have been much more worthwhile had the new species named since 1985 been included in the body of the text and added to the plates. In short, this volume is a small step in the right direction, but much more work must be done before a definitive book on this very attractive and collectible group of mollusks is made available.

Walter Sage, AMNH

RUTHENICA --- a new journal

(by Dr. R. Tucker Abbott)

A new and prestigious scientific journal on mollusks has been launched in Russia, the first in the former USSR to be devoted solely to malacology. Appropriately christened Ruthenica, the Russian malacological Journal is named after a genus of land snail endemic to west Asia in an area known in medieval times as Ruthenia. The journal's logo is Ruthenica filograna Rossmassler.

Volume 1, published in November 1991, includes papers on molluscan anatomy, pulmonate phylogeny, oliviform gastropod morphology, radular apparatus of the Turridae, and land snail morphology and systematics. New taxa are proposed.

The subscription price is $15.00 for individuals, $20.00 for institutions, plus $2.00 postage. Send checks made out to "R. Tucker Abbott", P. O. Box 2255, Melbourne, FL 32902-2255 and copies will be mailed out as quickly as possible. The American malacological community lauds the high quality of the science of this publication and welcomes this addition to worlwide molluscan literature.

DIVING IN A SUB FOR A PLEUROTOMARIA

by Constance E. Boone

In December, 1991, I made two dives in a small submersible off Georgetown, Grand Cayman, to try to see and, perhaps, collect a Pleurotomaria slit shell for the Houston Museum of Natural Science. The chances of seeing one were limited as they aren't found there in abundance on the steep wall, but I went with high hopes and returned exhilarated beyond belief - but without the prize shell. I did see one feeding on yellow sponge on the coral wall at 500 feet.

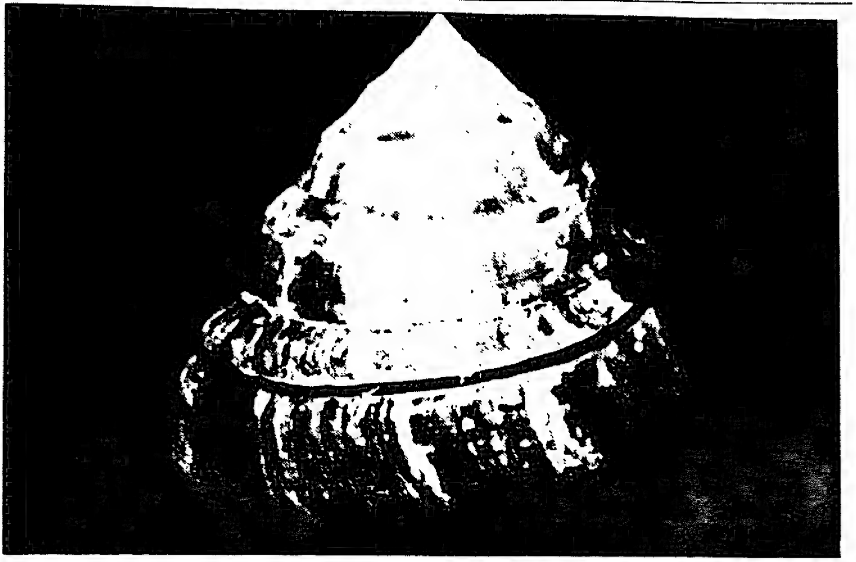
Today I write that the Pleurotomaria adansoniana Crosse & Fischer, 1861 that I saw and claimed as mine has been collected and sent to the Houston Museum of Natural Science and will soon be on display. The senior pilot of the submersible retrieved the shell for us on January 1, 1992. What a way to begin 1992!

Although the museum has an excellent display of the rare and primitive shells we know as "slit shells", the specimens we have are from Japan and one from Africa. We have not had one from the western Atlantic. Since the museum's main research collections are from the Gulf of Mexico and feature other western Atlantic material, it was important for us to acquire a Pleurotomaria from the western Atlantic. There are several species already known from these waters, and new ones are being found in very deep water. The Houston Museum is very pleased to add this beautiful, live-taken specimen to its collections.

Let me tell you the story of how this all came about. Last June a young man visited the museum and asked to see me. He had been sent by some divers. In his hands he had a shiny, one-inch shell which he wanted to have identified. I recognized it as a Calliostoma, but knew that I might not be able to give it a specific name after he stated that he had gotten it off a ship wreck at over 800 feet deep off Georgetown, Grand Cayman, where he was senior pilot on a small submersible. He ended up giving the Calliostoma to the museum so it could be researched, and he then pulled a Pleurotomaria from his pocket! I naturally went into orbit and began to ask about his trips, which are for the public. He said he could take me down to see a slit shell, perhaps. However, he is not allowed to collect shells or other sea life, as the British government controls what is allowed in waters at Grand Cayman. He had been allowed to collect a specimen of Pleurotomaria for the government and for another institution. Attempt is made by the pilots to identify material seen on their many dives. Troy Engen (the pilot) said he would take me down to try and find a slit shell for the dive price of $250.00 a trip (with two persons required for a dive). That seemed possible to me.

During the summer, I went to work to solicit permission from the British government to collect a Pleurotomaria for the museum. After sending the Calliostoma to Dr. James Quinn, a researcher in Florida working on Calliostoma and also some of the material in the Houston Museum of Natural Science malacological collections, we knew we might have a new species, and we wanted at least one more specimen. Therefore, we sought permission for this also. August came, September arrived, and October faded away. I began to lose hope. The week before Thanksgiving, Troy called me and said he had our permit in his hand. Dr. Quinn and I planned to go make the dives the first week in December, and on December 3, my birthday, we were in the little sub diving down the steep wall off Georgetown, Grand Cayman!!

This was a small Perry class submersible with operating depth to 1,000 feet. This was basically a cylinder about 20 feet long and about eight feet across, with a three foot, convex viewport of clear acrylic plastic at the front end. Batteries are contained in long cylindrical pods along the hull's flanks and provide up to 10 horsepower to the submersible's stern and directional thrusters and also power communication, lighting and ventilation systems. The internal environment is maintained at one atmosphere, the equivalent of normal sea level air pressure. It holds only two passengers, depending on weight. The pilot sits back of the passengers and directs the boat. The passengers sit on two small cushions in crowded condition facing the view port. You leave shore in a Zodiak and are taken to the small sub riding on the surface. There you crawl down a small conning tower and drop to the floor. There is no ladder to get in or out of the submersible.



This Pleurotomaria adansoniana Crosse & Fischer , 1861, 4.5 + inches, perfect and live-taken, is now at the Houston Museum of Natural Science.

Once inside, we were given some instructions about how to surface if something happened to the pilot. There is constant communication to the surface where another pilot remains in the Zodiak. I have been asked if I had claustrophobia or any other qualms about being in so small a sub and going so far below the surface. I guess I was too excited to be doing what I was doing. But, seriously, the trip was very easily accomplished. The pilots are knowledgeable and informative. You descend along the slope of the coral wall and observe the difference in the fauna as you go down. For our trip, we spent most of our time searching for the two mollusks we wanted.

Below two hundred feet, we began to see mostly sponges and black corals. There were not that many fish, and the farther down you went the less fish you saw. There were many echinoderms and few mollusks. Only with the lights on could we see the array of animals in color. This far down you didn't see any reef corals which require sunlight.

After scouring the wall and crevices where Troy had recently seen a Pleurotomaria, he announced that he had found one. I remember scrambling forward frantically trying to see the shell. Once I found it, that beautiful red shell, I was absolutely in heaven. Then we started trying to maneuver under the ledge to try and scoop it out with the pipe that Troy had attached to the front of the sub. The mollusk was feeding on yellow encrusting sponge on a smaller ledge. We could see the trail the animal had made as it crawled up against the inner wall. The plan was to scoop up the shell if we could and immediately ascend to within thirty feet of the surface and communicate with the pilot in the Zodiak who would dive down and get the shell from the pipe. That way we could avoid going through the waves at the surface and perhaps losing the shell. We kept trying, but the mollusk had crawled too far onto the ledge, and we finally had to leave the area. I was disappointed, but I had seen the shell, and Troy said this one had my name on it. Our permit was written as I had requested - we had ongoing permission to take one of each of the species.

We then went down to the ship wreck at over 800 feet to seek another Calliostoma. Troy had rigged up two small plastic containers to the front bars of the sub to try and scoop up this mollusk which he had found before on the hull.

We looked carefully up and down the ship but never found one. Hopefully, we will be able to retrieve this species another day.

We spent the last of our time looking at some of the gorgonians, weird sponges, wire and other black corals, the wonderful sea lilies, crinoids named Cenocrinus asterius, animals which look like plants but which crawl along on stems, waving umbrella-like tentacles about seeking food. There is no light at that depth, and there are no waves so everything you see seems rather stiff but is not.

The Pleurotomaria specimen sent to us had moved some 150 feet from the ledge I saw it on before it was collected, but I feel that the animal probably dropped off the ledge and fell to another crevice on that sloping wall. There do not seem to be many of the slit shells together. Troy says he saw two together once, and once he saw a lobster eating one. These are rare shells found in very deep places. There are more sophisticated submersibles with capabilities to do more precise collecting with vacuum machinery. But for me, my trip was one glorious event in my life.

Research Submersibles is run by a very nice group of young men in Grand Cayman. Troy has made thousands of dives. The operation is top quality. To arrange a trip, you can call direct (809) 949-8296.

(reprinted from TEXAS CONCHOLOGIST, Volume 28, no. 2, January 1992. We thank Mrs. Boone for sharing this wonderful trip with other collectors)

Sanibel Shell Museum Ground Breaking Ceremonies Scheduled

According to an article from the Sanibel Island Reporter dated May 1, 1992, the planned Bailey-Matthews Shell Museum was recently issued its development permit and the ground breaking ceremonies are scheduled for July 7.

Actor Raymond Burr and his business partner Robert Benevides will attend the festive occasion. Both men are full members of the shell museum's board of trustees and are honorary co-chairmen of the museum's fund-raising drive.

The original impetus for the museum came from a bequest from a long time resident of Sanibel and member of the Sanibel-Captiva Shell Club. The shell museum project attracted a cadre of faithful supporters who have devoted the past six years to achieving their goal of a shell museum on Sanibel Island. Our good friend and mentor, Dr. R. Tucker Abbott, has been serving as Acting Director of The Shell Museum and Educational Foundation, Inc., the "parent organization" of the museum. Dr. Abbott has been working tirelessly on all aspects of the museum, including fund-raising, accepting collections for the museum, and preparing exhibits to be ready when the museum opens.

Previous ground breaking ceremonies were scheduled for November, 1991 and April and May of this year, but had to be postponed until resolution of the question of whether to build an access driveway or a piling bridge. Rather than further delay museum construction, it was decided to go ahead with the original plans for the piling bridge.

Fund raising for the museum has been progressing at a steadily increasing pace and according to the museum's most recent newsletter, the capital campaign total stands at $840,000 in cash, pledges, and in-kind gifts. It is hoped that the museum will be open to the public in July, 1993.

Among the 33 planned exhibits are shells of Sanibel and Captiva; shells of Florida; shells in the fine arts; shells and man; biology and the lives of mollusks; shells in today's arts and crafts; shells in antiquities and religion.

There will also be a computerized conchological historical reference library and a central Shell Vision Bank of photographs and scientific illustrations.

(compiled by Walter Sage - thanks to Dr. Abbott for material)

HAMINOEA SOLITARIA (SAY, 1822) IN NEW YORK

by Dorothy Raeihle

The opisthobranch *Haminoea solitaria* Say appears seasonally in many bays of Long Island, in sheltered areas that offer a silty-sandy substrate. Stations and date of appearance vary from year to year, but they have been found with their egg masses at and below the low tide line as early as June 14th and as late as October 13th. Usually the shells are white to colorless, with traces of orange periostracal thickenings in the evenly spaced spiral grooves that cover the body whorl. They generally range to 8 and 10 mm in height.

Breeding colonies were found at a station on the bay side of Jones Island in the summers of 1958, 1963, 1970, and 1971. In 1970 there was a particularly large colony. The shells reached 13 mm and practically all had a periostracum that ranged in color from ivory in the lightest specimens to orange-horn in the darkest. In August of 1967, at the same station, freshly dead specimens rafted ashore on seaweed had the horn-colored periostracum covering the shells except at the area of depression around the protoconch. They were of remarkable size, ranging from 15 to 20 mm in height. Dr. R. T. Abbott verified the identification as *Haminoea solitaria* Say, remarking, "They are the giant form from New York first named by Totten as *insculpta* in 1835. Sowerby records it in 1868 from New York."

The animal of *Haminoea solitaria* is dark grey. It is quite extensible and, unlike some of the other opisthobranchs, can retract into its shell. Living specimens were collected for observation in 1963 and 1970, and each lot produced egg masses, in the following manner: A few seconds after the snail burrows into the substrate, a small "air hole" is made. Next the hole is seen to be enlarged and covered with a clear gelatinous material. Some time later the spherical egg mass is pushed above the surface of the substrate, the clear bubble having been filled with an egg string containing thousands of eggs. The egg mass is attached to the substrate by a ribbon-like mucous cord that may measure up to 35 mm. Most of its length is beneath the surface, and the egg masses bob about above the substrate like tiny tethered balloons.

Egg masses collected in the field measured 10 to 15 mm in diameter. The gelatinous outer wall of the sphere, ± 1 mm in thickness, is smooth and slick when freshly deposited. The individual cases, which contain the minute ivory eggs,' measure 8 cases per mm. As the larvae develop the outer surface of the sphere first turns rough in spots, then layer by layer disintegrates to coincide with the time of hatching. At 80° to 84° F hatching began, in captivity, early on the third day after deposit; at 72° to 76° hatching was not until late in the third day. Hatching continued for from 36 to 48 hours and at completion nothing but a few shreds were left of the original sphere. (As water temperatures in the bays during breeding season range from 68° to 73° F, it is likely that there is a longer incubation period *in situ.*)

The veliger has two fairly small velar lobes with rather short cilia; the mass of the swimming animal does not extend beyond the width of the simple glassy nuclear shell. Veligers hatched in captivity lived less than three days. Specimens retrieved from the container were of two sizes and were considered as newly hatched and about two days old. The newly hatched, 1/10 mm, had operculums that filled the apertural opening to the rim of the shell; the two-day-old specimens, 1/8 mm, had shell growth on the body whorl that extended beyond the closed operculum. Dr. Harold J. Walter kindly examined specimens at over 150X and advised me that the veliger shells are totally sculptureless, and that there are no traces of punctation on the adult shell.

A silty substrate appears to be an important factor in the successful deposit of egg masses. As the animals were transferred to progressively siltless substrates, sand grains would cling to the egg masses until in clean coral sand the weight of the particles was sufficient to hold the egg masses in the substrate.

(Representative samples of egg masses and of both adult and veliger shells and animals have been placed with the American Museum of Natural History in New York, the National Museum of Natural History in Washington, D. C., the Marine Biological Laboratory at Helsingør, and with Dr. Harold J. Walter of Dayton, Ohio, whose assistance is greatly appreciated.)

(reprinted from Bulletin of the American Malacological Union, Feb. 1972)

FIRST SHELL

by Dorothy Raeihle

My earliest memory of a shell goes far back to when I was a rather small child curious about the contents of a box my older brother and a cousin had found and which they were examining with much interest. The box contained seashells, the small collection attributed to a great grandfather who had been a pilot on ships running between the Philadelphia/Delaware area and the West Indies. I remember reaching for a small, flat white oval, but when my fingers closed on it I suddenly had nothing but powder. I reached again, was stopped, and strong admonitions followed before, at my insistance, I was pernitted to hold one, carefully placed on my outstretched palm while my fingertips were held firmly down so that I couldn't close on it. Thus my introduction to a fragile bubble shell.

Twenty or more years later, on a bright winter's day, my husband and I visited Hecksher State Park and walked the shoreline at Great South Bay. A tangled drift of dried and blackened eel grass tossed like tumbleweed close to our path; it was dotted with little white things. I walked over to see what these things were that were caught in the tangle. While examining them they crumbled in my grasp, and I felt that there was something familiar about them; in a few moments I realized that these shells were the same type as we'd found long ago in the box from the chimney cupboard. More years later, when we were "into shelling," we had the identification: Haminoea solitaria, alias Northern Paper Bubble, Fragile Bubble-shell, Solitary Paper Bubble, Eastern Glassy Bubble, and Solitary Glassy-bubble.

I have no idea what other shells were in that box - it was the shell-that-was-suddenly-powder accompanied by the strong admonitions that made such a lasting impression. Incidentally, for the common name I would choose "Fragile Paper Bubble," but there are enough names already.

(Our thanks to Dorothy for sharing her early experiences with us, and showing us how curiosity and interest in the world of nature can lead to a lifetime of study and result in the type of work reprinted on page 12 - WS)

Giant African Snails Recently Introduced into Florida Pet Shops

We've all heard the story of how a specimen of Achatina fulica (Bowdich, 1822) was brought from Hawaii to south Florida in the mid-1960s and quickly multiplied into many thousands of specimens that were eating any plant life they crawled across. There were audible sighs of relief when the last specimen was exterminated in 1972. This native of West Africa has been introduced into a number of tropical areas across the globe, and in each case it was only a very short time before these large, active mollusks became a nuisance.

And the "cure" was worse than the ailment! Well-meaning individuals thought that the carnivorous Euglandina rosea (Ferussac, 1821), a native of the southeastern United States, would relish the bounty that A. fulica would provide it. And so the hungry E. rosea was introduced to many tropical islands and it was immediately learned that E. rosea much preferred the smaller, native (often endemic) land snails to the larger, more slimy A. fulica. And many of the endemic species have become extinct, due in part to E. rosea predation.

The Giant African snail is still alive and well in Hawaii, as this writer can personally confirm. In November 1988, numerous specimens were seen at night on lawns on the island of Oahu, and again on Kauai. But vigilant U.S. customs inspectors have until now kept these invaders off mainland United States. We now have a report that a related species, Archachatina ventricosa (Gould, 1850) was spotted in a Tallahassee, Florida pet shop in March of this year. Department of Agricultures officials immediately investigated and found that live snails were received from Nigeria through Kennedy Airport in New York. The Florida source was found to be a Gibsontown, FL fish farm, and agents began tracking down the specimens, which were believed to have been dispersed to a number of states. At least 14 live snails were confiscated, and additional specimens were believed to have been sold for $10 each. Inventory records from the fish farm mention "hundreds" of specimens - we can only hope that the various officials involved will continue hunting until the last of these 5-inch natives of Sierra Leone and Nigeria are tracked down and dispatched to "snail heaven". One report indicated that all but two specimens had been located, so there is hope that the adults can be eradicated before any young are born. A few years ago a specimen of A. fulica was brought to me here at the American Museum in New York, but it was only a week or so before officials came for it.

(complied by Walter Sage from reports sent by Tucker Abbott and Dot Germer)

NEW YORK SHELL CLUB 1992 SOCIAL/AUCTION

Our April meeting, Sunday, April 12, was our annual Social/Auction, and thoroughly enjoyed by all who could attend. The shells and other auction items were great, the bargain table had excellent "finds", the refreshment table supplied food and drinks, and there was time to greet old friends and make new ones. It was also very helpful for the NYSC treasury - the net proceeds - $1,514.56.

Our special thanks go - as always - to Dorothy Jensen for the use of her dance studio. Also, many thanks to Sol Weiss for preparing the auction items, the bargain table, and conducting the auction itself.

In addition, we had much help from those on the list which follows. Their help took many forms; donations of shells, books, other items, and food for the refreshment table. Others helped in setting up tables, clean-up, and all the other tasks involved in preparing and conducting a successful auction/social. The names are listed randomly and the order in which they are listed bears no relation to the contribution made; we are grateful for everyone's help, great or small, and thank each one. If we have missed any contributor, please let us know; it is unintentional, but sometimes happens in spite of our attempts to keep track of everything.

Juliette Compitello
Dr. Edward A. Dunlap
Dr. Walter H. Jacobs
Larry Potter
Arline Reimann
Hans Reimann
Theta Lourbacos
Mike Werner
Walter Sage
Mary Weiss
Sol Weiss
Fay Washington

Edward Cowles
Maud King
Carl Ehrlich
Nick Katsaras
Al Scarpetti
Henry Gordon
Allen Aigen
Romuald Czepulkowski
Irving Hoppenwasser
Harvey Frajlich
John Cole
Philip Hackbarth

Dorothy Jensen

The following are the shell dealers who contributed auction items; we include their addresses with the hope that you will wish to patronize them when making your purchases of shells and shell books.

Dr. R. Tucker Abbott
American Malacologists, Inc.
P. O. Box 2255
Melbourne, FL 32902-2255

Sue Hobbs/Phil Deitz
P. O. Box 153
Cape May, NJ 08204

Paul Monfils
Northeast Natural History Imports
P. O. Box 6183
Providence, RI 02940

Marty Gill
Shamaron Shells
4540 SW 97th Avenue
Miami, FL 332165

Archie L. Jones
8025 SW 62nd Court
Miami, FL 33143

Dan Spelling
Specimen Shells Sales
1094 Calle Empinado
Novato, CA 94949

It is especially noteworthy that the above-listed contributors and local NYSC members answered our request for assistance in a very timely manner, and indeed, without them there would have been no auction to provide necessary funds for the continuation of the New York Shell Club. Since we have exhausted those shells donated from Veronica Johns' stock, we will continue to depend in the future on your generosity.

Officers and Directors, New York Shell Club

REMINISCENCES - from NYSC NOTES, No. 40, March 1958

1958 Auction/Social Meeting - April 13

On this Sunday afternoon the New York Shell Club held the biggest social event in its history at the National Arts Club, 15 Gramercy Park South, New York. The occasion was the fourth annual auction, and the festivities began with coffee, cake, and ice cream served in celebration of the club's tenth year of existence.

Then with 60 members and guests in gala mood, Dr. Walter Jacobs, the auctioneer, put shells, books, and oddments up for the bidding. Often the bidding was so spirited that it began before the shell could be described and named; the longer the name of the shell, the higher Dr. Jacobs drove the price. Some shells were offered with opercula, and one lady bidder, who asked if a certain shell had a "door", was reprimanded by Dr. Jacobs: "Madam! You don't call it a door! Even I know that! It's an operculum!" When a picture frame studded with shells was offered for auction, one member facetiously asked if it had an operculum. To this no answer was given. Later Dr. Jacobs, a dentist, pronounced himself as the only expert present qualified to judge the condition of the lip of a volute, the rarest shell offered during the afternoon.

Other unusual items included a watercolor painting by the auctioneer, a letter in the handwriting of A. Verrill, a collection of small shells in a tray with 133 labeled species which went for $10 (the highest price for any single item) and a Scaphella junonia which was sold for $7.35, the highest price paid for any single shell.

After the more valuable shells had been sold, Dr. Jacobs turned over the gavel to Mr. M. K. Jacobson, who thereupon decided that nothing left on the table was worth more than ten cents apiece. The buyers immediately surrounded the table on which the shells were displayed, searching for good buys.

Order was restored by "grab-bagging" for surprise packages of shells which had been paid by each person as admission. Then, suspense ran high as young Master Jacobs drew the number for the valuable door prize which had been donated by Mr. Nick Katsaras. Tension ran ever higher as no one answered to the first number, 59. When the second number, 23, was drawn, Mrs. Josephine Wichern rose to receive a beautiful specimen of Scaphella junonia butleri. As a result of the auction, the club cleared about $50.

(Respectfully submitted, Catherine Ahders, Secretary)

[This bit of nostalgia is offered for a number of reasons: 1) to contrast the 1958 auction with the April 1992 auction just completed; 2) to offer long-time members some interesting memories of 34 years ago; and 3) to note that Dr. Walter Jacobs is still an active member of NYSC - he was a co-founder in 1949- and to warmly congratulate him and Mrs. Jacobs on the occasion of their 60th wedding anniversary this coming August 21. We extend our best wishes to them both, and wish them continued good health and good shelling - WS]

Amway's "Redu" - a Cure for Rust-Stained Shells - by Larry Buck

Until now I have found it impossible to remove rust-colored stains on any shell specimens without the undesirable use of acid. Various shells, including some volutes, bivalves and Muricidae are plagued with this problem. Our friend Doug von Kriegelstein has discoverd that the Amway product "Redu" in a solution of one tablespoon dissolved in two cups of warm water will accomplish the removal, in some cases in as little as several minutes, or even two days for others.

Larry and Doug urge experimentation with lesser quality specimens before using the treatment on specimen shells and note that glossy shells develop an opaque look. (San Diego Shell Club's The Festivus 23 (7), July 1991)

BEACH COMBINGS

by Dave Grant

Beach renourishment projects may be controversial, but they can also have unexpected benefits for some inhabitants of the beach, and they are a boon to beachcombers.

Although keeping Sandy Hook accessible to visitors and their cars was the most obvious justification for the 1984 and 1989 renourishment projects, to everyone's surprise, within weeks after the sand pumping ended, birds that require bare beaches for nesting (least terns, common terns, and piping plovers) set up housekeeping and used the beach as a colony area for several summers.

Hoards of beachcombers also descended on the area during and after the sand pumping. After years of scouring the beach at Sandy Hook, I thought I'd found everything worth mentioning, a greater assortment of shells and driftwood than from any other part of the Jersey Shore as well as antique bottles, fishing lures, and welcome and unwelcome flotsam and jetsam from ships and cities. The renourishment of Sandy Hook added a whole new class of materials to my collections - deepwater treasures that are normally beyond the reach of waves.

Many of the new finds have interesting tales to tell us about the offshore environment where they were dredged up. The source of others is puzzling, but adds to the excitement of beachcombing. Some of my most notable prizes so far include deepwater shells like sea scallops (_Placopecten_) and mahogany clams (_Arctica_). These two commercially valuable species are found on New England beaches, but not here because the local water is too warm for them to survive in the summertime. Dredging of the offshore ship channels leading to New York City brought them onto our shore. Remarkably, whole scallop shells, large, thin and fragile as they are, managed to survive a rough trip through dredge pipes and land unbroken on the beach.

A third bivalve, the northern cardita, much smaller than the preceding two species and almost unknown on the beach before, is also fairly common now.

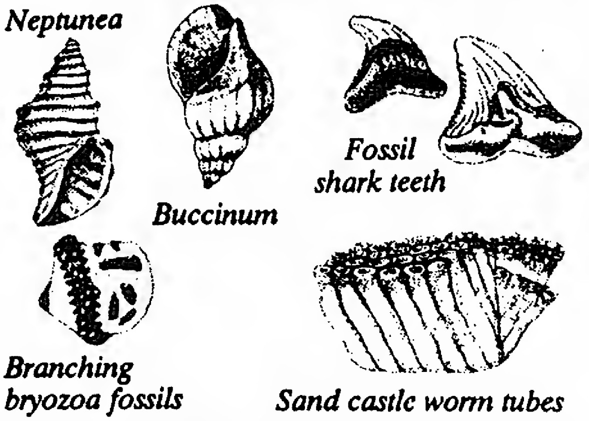
Two warm-water shells that also occasionally appear on the beach are the southern quahog (_Mercenaria campechiensis_) and the thick heavy ark (_Noetia ponderosa_). The southern quahog is larger, much thicker, and less colorful than our northern variety. It is a very common shell on Florida's beaches and in its fossil deposits. Most arks are found in warm seas. The heavy ark is the largest of the three found along our northern coast.

Both of these warm water relicts are reported as live shells only south of the Chesapeake, so their presence in our sediments is proof that the waters off New Jersey must have been at least as warm as Virginia's waters during the interglacial periods.

I've collected two other bivalves fused together in partially fossilized clumps. Interestingly they are not normally found living alongside each other. They are young surf clams (_Spisula_) and the look-alike false surf clams (_Mulinia_). Since the former is primarily an ocean clam and the latter a bay inhabitant, they most likely were piled together in some ancient inlet that the dredge passed over in its offshore work, giving us circumstantial evidence of rising sea levels and a migrating shoreline that must have existed east of its present location. Other evidence of shoreline retreat includes relict oyster and bay scallop shells that were darkened by the muddy lagoon sediments that once buried them. These bay dwellers ended up on what became the ocean floor when the barrier beaches that protected their lagoons migrated towards the mainland.

Deepwater snail shells like the waved whelk (_Buccinum_) and the ridged whelk (_Neptunea_) are common in New England where the coastal water remains cool year round. Farther south they rarely end up on the beach, apparently brought within reach of the waves by hermit crabs that borrowed the shells and moved into shallow water. Dredging of offshore sand has added them to the growing list of shells found at Sandy Hook along with what used to be the most elusive find - sand dollars.

Never more than a rarity on the beach here, living sand dollars are scarce offshore too, apparently, because of their sensitivity to the ocean dumping that has polluted some sediments off Sandy Hook. Since the dredging, they are found in good numbers on the beach, especially north of the renourished beach where the littoral drift carries them. Somehow they too survive the tumbling in the dredge pipes and in the surf, and regularly wash onto shore intact.



Delicate sand castle worm tubes (Sabellaria)can also be found up on the beach now. These fragile aggregations of glued quartz grains disintegrate quickly when they dry out and are handled. They hold together long enough to get to shore because they are supported by the envelope of water surrounding them when they are in the turbulent water of the dredge and the surf.

Just as common and much sturdier than sand dollars or sand castle worms are the number of fossils that can be picked up on the beach. A few shark's teeth and brachiopods and mollusks have also been present. They were washed from Cretaceous and Tertiary deposits that form the neighboring bluffs of Long Branch and Highlands, the original sources of Sandy Hook's sand. Today they are more common and are joined by both older and younger fossils. I've found such things as branching bryozoans, perhaps as old as the Paleozoic and a beaked whale (Mesoplodon) skull which is recent enough to be untarnished by the iron or manganese mineralization that usually occurs as fossilization proceeds. Mesoplodon means "armed with a tooth in the middle of the jaw" and the dolphin-shaped beaked whales all have an elongated jaw with few teeth. They probably feed on squid. The skull is a particularly interesting find because this obscure group of open ocean cetaceans is rarely seen along the coast - usually washing ashore as badly decomposed corpses - and may be a branch of marine mammals heading towards natural extinction.

Other mammalian bones turn up regularly, but they are usually only old soup bones that only look ancient and mysterious because they have been buried in anaerobic mud and taken on its dark color. Like the numerous pieces of china to be found, they were likely discharged at sea with kitchen trash from ships.

I have found a number of natural objects at the beach that are definitely not native to this area and also were probably brought here by ship traffic. Sizable pieces of tropical coral, coral rock and coquina stone were probably ballast jettisoned from old sailing ships. Beautifully polished river stones may have been cast from the same ships traveling south, or perhaps are till from the glaciers that barely reached this area. Pumice is also found washed up, but probably floated here on its own long ago since it is too light to function well as ballast.

Artifacts attributable to human activities include a surprising assortment of military ordnance, slag, jewelry, and coins.

The ordnance, artillery rounds and grenades, is a bit of a mystery. Most of it apparently was fired out to sea prior to 1918, during gun testing at Sandy Hook. The rest may have come from accidents aboard military ships. Some of this material is potentially dangerous and should never be picked up by beach-

Beach treasures. Photo by D. Grant.

combers. Fortunately there have never been any accidents associated with it. My most interesting find was a small derringer type pistol. Like most ferrous metals recovered here, it was blackened and heavily encrusted with iron sulfide from its lengthy stay in the water. It disintegrated rapidly upon exposure to the air. (Note: because of both the military ordnance and park ordinances, metaldetectors are prohibited on Sandy Hook.

Furnace slag is a common find, attesting to the large number of coal-burning ships and ferries that used to pass here. Its intricate shapes and metallic sheen make this peculiar "rock" a fairly attractive addition to a collection of seashells and other treasures from the shore.

Jewelry and coins are perhaps the most exciting artifacts found on the beach. There are certainly more stories of treasure in this area than recovered loot. Vague legends of Captain Kidd and other corsairs notwithstanding, coins, including gold ones, have been found in this area after dredging operations. The best-documented incident occurred in Highlands in April, 1948, when William Cottrell, a local lobsterman whose family still sails out of here, found 28 one-ounce gold "Johannas" on the town beach. According to local legend this is the very site of James Fenimore Cooper's story "The Water Witch," a fictional account of a pirate captain who smuggled Old World riches ashore here long ago. The rare and valuable "Johannas," dating from the mid 1700s, commemorate Portugal's King John and are said to be worth thousands of dollars each today.

Although I've never been as lucky as some other beachcombers I've met or heard about (one of whom really did find a piece of a gold coin here on Sandy Hook) I have come across some worthwhile discoveries. Copper and other non-ferrous metals are more durable than iron and survive exposure to the saltwater for lengthy periods. Occasionally I've found weathered old rings and other heirlooms that must have fallen overboard long ago, perhaps during one of the many shipwrecks here. I've also seen Indian Head pennies and even English coins from the early 1800s that were still collectors' items after being in the ocean. A number of people have also brought me mysterious coins about the size of a quarter that were probably tokens for the one-dollar ferry that ran from New York City to the Jersey Shore at the turn of the century.

I used to rush to the beach after a storm, worrying that all the good treasures would be found by others. I realize now that the ocean will always be washing up more than I can carry away, regardless of how many beachcombers get there before me. Of course it always helps to be in the right place at the right time, so keeping abreast of dredging operations is important.

As erosion problems increase and more beaches are renourished, tax dollars will be spent trying to do the work of the waves. However, such projects also seed the beaches with plenty of treasure for beachcombers.

(reprinted from Underwater Naturalist, Bulletin of the American Littoral November 1991 Society, Volume 20, Number 3)

WHICH ONE IS IT?

Margaret Thorsen

Some months ago, I realized that I needed to settle down and devise some way to remember species names. We recognize a conch, cone, cowry, olive, murex, tulip, etc. when we see one, but the question is always "*Which one is it?*" I knew that knowledge of the meaning of the Latin and Greek terms should provide some answers. In response to a call, Emily Vokes recommended a book entitled "The Composition of Scientific Names" by Roland Brown. It is a fascinating book! I have studied hard and want to share with you what I have found. Some of it is very clear, some of it is still hazy and warrants repeated reading, some of it is amusing, but all of it is relevant to the problem of recognition and identification.

As our readers know, Carolus Linnaeus established, in the 18th century, a binomial system of biological nomenclature in which two Latin or latinized words comprise the scientific name. This consists of a first or generic name (a noun or a word used as a noun, in the nominative singular) and a second or specific name. Think of the generic name (genus) as a kind of car (Chrysler) and the specific name (species) as the model (Imperial, Le Baron, New Yorker, etc.). In the automotive world, there is no need for picking a model name which conveys descriptive meaning. The number of models is so limited that we have no difficulty in distinguishing one from the other. In the world of shells, however, the number of species names is mindboggling. Tucker Abbott's "American Seashells" contains 63 index pages, each page containing 3 columns of 75 names each. This amounts to 17,325 names, and this volume is concerned with American seashells only! Is it any wonder that the majority of collectors specialize in one family?

This specific name (the species) may be: **(1)** an adjective which agrees in gender with the genus, e.g. *Conus attenuatus,* **(2)** a present participle - *Arenaria repens* (creeping sandwort), **(3)** a noun or a word used as a noun, in the nominative singular which need not agree in gender with the genus, e.g. *Cypraea turdus* (thrush cowry), or **(4)** a noun in the genitive singular or plural, e.g. *Vasum locklini, Conus dalli.* From time to time, trinomials have crept into use. We have, for example, *Conus spurius atlanticus, Cypraea capensis elizabethensis, Haustelum (haustelum) haustelum.* The third term is used as a designation of variety. In other fields of science, we find such names as *Cardinalis cardinalis cardinalis* and *Rattus rattus rattus.* Of such names as these, Brown observed, "Nomenclature need not compete with the Hallelujah Chorus."

As you scan an index of species names in one of our shell bibles, you register at once to several things:

(1) Some are names of places or locales where a particular shell is found:

Conus floridanus
Tagelus californianus
Trivia pacifica
Voluta taiwanica
Pterorhytis fluviana
Cypraea mozambicus
Murex mindanaoinsis
Sinclairoceras haha (an Ordivician cephalopod named for the Ha! Ha! River region of Quebec)

(2) Some species names refer to a person whom the author wished to honor:

- ***Conus abbotti***
- ***Acteon eloisae***
- ***Conus dalli***
- ***Cypraea humphreysi***
- ***Pecten dianae***
- ***Vasum locklini***
- ***Murex doonmoorei***
- ***Murexiella macgintyi***

The meaning of the above species names seems obvious, and you need not be a student of Latin to understand them. However, they do not in themselves provide a clue which would help in selecting the correct cone or murex from among a group of them. We can assume that authors name shells for friends, wives, the person who first found the shell, and notables in the field of malacology. We know, too, that Jerry Walls named ***Conus tribblei*** for his cat!

(3) Some shells were apparently given a particular species designation because in the mind or eye of the author they bore a resemblance to some familiar object or animal. Some examples are:

Cypraea pantherina	(panther)
Cypraea mus	(mouse)
Cypraea pallidula	(rhinoceros)
Cypraea stercoraria	(rat)
Cypraea camelopardalis	(giraffe)
Cypraea talpa	(mole)
Cypraea lynx	(lynx)
Cypraea felina	(cat)
Cypraea tigris	(tiger)

In all fairness to the gentlemen who named these shells, I must admit that a great many cowries have spots of some kind. It is understandable that it is virtually impossible to distinguish between large, small, many, few, colored, white, bunched together, and spread out spots. Apparently, authors took a family such as ***Felis*** (cat) and ***Cervus*** (deer), both of which have spots, and used appropriate forms of these names to distinguish between members of the cowry family which have spots. Even after close examination of the shells themselves, I can't yet understand the mouse, rat, giraffe, turtle, rhinoceros or mole designations. Nor the swallow or thrush, either, for that matter. Frankly, no matter what they called them, I would have trouble identifying most of them. The only four cowries I'm sure of are *aurantium, tigris, edentula,* and *problematica.*

(4) Some names were never intended for us to understand . They seem related to an event, a set of circumstances, or something important in the life of the author at the time he was naming a new species. For example, a graduate student working with Pilsbry was given the privilege of naming a new species he had been studying. He named it *dorothea* in honor of the girl he was in love with. Some months later, she jilted him, and he renamed the species *inconstans.* Pilsbry, in time, discovered this to be a duplication of an existing name, and he renamed it again, this time calling it *anticlimax.* Another example concerns Clench when he was at Harvard. As the story goes, he was in his office working when there was suddenly a great commotion outside. He ran to the window and looked out to find that the tower of Memorial Hall was on fire. As a consequence, the shell he was working on was given the name *incendrium.* The last example of names in this category is one in which the species name is derived from the circumstances surrounding its discovery. It seems that a small fishing boat pulled in to a beach to enable the crew to shovel out and clean up the hold. One of the crew needed to relieve himself, and did so on the beach, uncovering a lovely shell. The name assigned to it? *Urinatus!*

(5) Many species names provide us with help by indicating color, size, shape, structural characteristic, or some distinctive marking or condition. I'd like to share with you some of what I've learned, beginning with color. Future issues will complete the colors and cover some of the other characteristics.

COLORS

White:

Species names having reference to the color white seem to derive from 3 Latin and 1 Greek word, as follows:

Albus (L)	(White)	*Malleus albus*
albida		*Cancellaria albida*
albescens		*Nassarius albescens*
albicans		*Pecten albicans*
albidus		*Pitar albidus*

Lactis (L)	(Milk)	
lactea		*Cancellaria lactea*
lacteus		*Polinices lacteus*

LEUKOS (Gr)	(White)	
leucostoma	(white mouthed)	*Turritella leucostoma*
leucodon	(white toothed)	*Cypraea leucodon*
ochroleucus	(yellowish-white)	*Conus ochroleucus*

Nivis (L)	snow	
nivia		*Olivella nivea*
nivosus		*Conus nivosus*
nivosa		*Cypraea nivosa*

In each case, the adjectival form implies some form of white or whiteness, milky white, snowy, snowy white, etc.

YELLOW:

So far, I have located eight terms which refer to the color yellow or some form of it. They are:

Cera (L)	wax, beeswax	
cerina	wax colored, yellowish	*Gouldia cerina*

Krokotos (Gr)	saffron yellow	
crocatus		*Chicoreus crocatus*
crocata		*Lambis crocata*
crocatum		*Vexillum crocatum*

Flavus (L)	yellow, golden yellow	
flava		*Natica flava*
flavidus		*Conus flavidus*
flavida		*Ancilla flavida*
flavescens		*Conus flavescens*
flavicans		*Cymbiola flavicans*

Fulvus (L)	tawny, reddish-yellow	
fulvescens		*Mitra fulvescens*

Luridus (L)	pale yellow	
lurida		*Cypraea lurida*

Luteus (L)	Yellow	*Conus luteus*
lutea		*Tellina lutea*
luteofasciatus	Banded with yellow	*Theodoxus luteofasciatus*
luteostoma	Yellow mouthed	*Tonna luteostoma*

Ochros (Gr)	Pale yellow, sallow	
ochracea		*Tellina ochracea*
ochraceus		*Astrea ochraceus*

Xanthos (Gr)	Yellow	
xanthicus		*Conus xanthicus*

RED:

The reds are so numerous that it is possible only to identify those forms which we encounter as species names in the literature:

cardinalis	Red	*Conus cardinalis*
coccineus	Red like a berry, scarlet	*Conus coccineus*
coccinea		*Littorina coccinea*
coccineum		*Vexillum coccineum*
cruenta	Blood red	*Sanguinolaria cruenta*
cruentata	Blood stained	*Bursa cruentata*
erythros	Red	
erythrostoma		*Oliva erythrostoma*
erythrostomus		*Phyllonotus erythrostomus*
ferrugata	Rust- colored, dark red, rusty	*Mitra ferrugata*
ferruginea		*Patella ferruginea*
flammea	Fiery red, like a flame	*Terebraflammea*
flammulata		*Oliva flammulata*
flammula		*Cymbiola flammula*
fraga	Strawberry- colored, like a strawberry	*Mitra fraga*
haima	Blood	
haemastoma	Red mouthed	*Strombus haemastoma*
ignea	Fiery, flaming	*Pisania ignea*
miniata	Bright red, cinnabar red	*Patella miniata*
rhodon	Rose, red	
rhodostoma	Wine mouth	*Bursa rhodostoma*
rosa	Rose	*Bursa rosa*
roseus	Rose-colored, rosy	*Pitar roseus*
rosea		*Harpa rosea*
roseum		*Gyrineum roseum*
ruber	Red	*Haliotis ruber*
rubra	Reddish	*Emarginula rubra*
rubidus		*Murex rubidus*
rubescens		*Chicoreus rubescens*
rubritincta	Red-painted	*Mitra rubritincta*
rufus	Reddish	
rufa		*Natica rufa*
rufescens		*Haliotis rufescens*
rufanensis		*Nassarius rufanensis*
russus	Red	
russa	Reddish	*Vexillum russa*
rutilus	Red, ruddy	*Conus rutilus*
rutila		*Cymbiola rutila*
rutilum		*Cymatium rutilum*
sanguineus	Bloody, blood-red	*Conus sanguineus*
sanguinea		*Turritella sanguinea*

(reprinted from THE JUNONIA, December 1991 - Sanibel-Captiva Shell Club, Inc.)

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
283 W. 11th St.
New York, NY 10014
212-929-7430

Vice President

LAWRENCE POTTER
109-14 Ascan Ave. #5J
Forest Hills, NY 11375
718-793-4030

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for the following year beginning each September, as follows; full membership $9.00 per year, family membership $11,00 per year, corresponding membership $7.00 per year in the United States; overseas membership $9.00 per year paid in U.S. currency.

The Treasurer-Membership Chairman should be notified promptly of any change of address.

NEW YORK SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETINGS - 1992 - 1993

PLEASE NOTE: There are differences in date, day and time for our meetings from month to month (unlike previous years.) Consult the current edition of the NOTES for confirmation of date, day and time of each meeting.

DAY	DATE	TIME
SEPTEMBER	MEETING CANCELLED	
Sunday	October 11, 1992	2 P.M.
Sunday	November 1, 1992	3 P.M.
Sunday	December 6, 1992	2 P.M.
Sunday	January 3, 1993	2 P.M.
Sunday	February 14, 1993	2 P.M.
Sunday	March 14, 1993	2 P.M.
Sunday	April 4, 1993	2 P.M.
Sunday	May 9, 1993	Social/Auction
Sunday	June 13, 1993	2 P.M.

Meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City, except our Social/Auction. On our meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

The NEW YORK SHELL CLUB meets on the second Sunday of each month, September through June, in Room 319 of the American Museum of Natural History, New York City (unless otherwise advised). NOTE that changes have been made in the schedule of meetings for the 1992-1993 season, and plan accordingly. Please present your membership card from NYSC for admission to AMNH on meeting dates.

PROGRAM SCHEDULE

SEPTEMBER MEETING CANCELLED

(New York Area members have been notified by mail)

SUNDAY, October 11, 1992, at 2:00 p.m. - Dr. Gary Rosenberg of the Academy of Natural Sciences, Philadelphia will give us a slide talk entitled "Introduction to the Ovulidae".

SUNDAY, November 1, 1992, at 3:00 p.m. - Dr. Jon Greenlaw of the Long Island Shell Club will present "Shelling at Utila, Honduras".

SUNDAY, December 6, 1992, at 2:00 p.m. - Sue Hobbs and Phil Dietz of Cape May, New Jersey will present a slide program entitled "Shelling in Pacific Panama ".

CONTENTS		PAGE
How I Became Interested in Collecting Shells	Al Scarpetti	2
Books in Review	Walter Sage	3, 4
In Memoriam - Waverley H. Harmon	Walter Sage	5
In Memoriam - Dr. Walter H. Jacobs	Walter Sage	6
The Formation of the New York Shell Club	Walter H. Jacobs	7
Collecting Marine Mollusks in Florida - Rules..	William G. Lyons	8, 9
Stuck on Mussels - natural adhesive	Ivan Amato	10-12
A Note on Exotic Species	Henry W. Chaney	12
Miscellaneous - Musings, Notices, Advice	Walter Sage	2, 7, 9, 18
Interesting Gastropods - 1992 Cocos Island Exp.	Henry W. Chaney	13-18
Wonders of Jamaica Bay - a 20th anniversary program	AMNH report	18

Your compiler and typist must apologize for not having this issue ready as planned for mailing at the proper time. You hopefully have noticed that our regular Highlights of recent meetings are missing from this issue. A rather hurried trip home to Kentucky is largely responsible for these omissions - I expect to be "on schedule" for the December issue, and do apologize to Mike Werner, Theta Lourbacos, and others for the unavoidable delay.

I would like to dedicate this issue to the memory of our co-founder, Dr. Walter H. Jacobs, and long-time member, Waverley H. Harmon, who have recently passed on.

Please make sure you are aware of the change in program schedules -- the September meeting cancelled and the November and December meetings on the 1st Sun. (Sunday, November 1 at 3:00 p.m.) We thank Theta Lourbacos for coordinating the necessary changes in schedule. Please refer to the inside of the cover page for all the meetings through June 1993 - we have been forced by several circumstances to change the Auction/Social meeting to the May meeting, instead of the traditional April gathering. We want you to attend, so take note NOW.

HOW I BECAME INTERESTED IN COLLECTING SHELLS or - THANK YOU, Bathybembix argenteonitens by Al Scarpetti

The day I first walked into what was then "The MacArthur Shell Shop" (later, Seashells Unlimited") really began my adventures with shells.

That first encounter was discouraged slightly by the crusty attitude of the shop-owner, Crosby MacArthur. His relationships with customers were not what one is likely to term "cordial." It was more of a "dare experience" to walk into his shop, especially with the lighting calling for miner's hats. I could still see what fantastic things were there - marvelous forms and colors, and I was smitten right then and there.

On top of the counter in a giant clam were a group of pearly shells that caught my eye. I asked their name, and was told Bathybembix argenteonitens - which staggered me - unused as I was to Latin names. I told MacArthur I could never remember that, so he wrote it down for me. Unfortunately, his handwriting was akin to that seen on a doctor's prescription. I then asked him if he would type the name out for me. Quickly approaching the color of Conus bullatus, and no doubt mumbling some dire imprecation, he went to the typewriter and obliged. Handing me the information he said, "There, is that good enough for you?" I thanked him, bought a pair of those marvelous gems, and quickly left the shop!

The really fun part of all this was that this was the time when Veronica Parker Johns began coming into the shop, and she was there that day. I remember her standing at the rear of the shop, smiling through all this! MacArthur by then was getting tired of the shell game and wanted out. Veronica was told by his assistant that he wanted to sell the business. Soon after, Veronica bought the shop; it became "Seashells Unlimited", and the rest was history!

Over the years I kept coming back to "Seashells Unlimited" on Third Avenue in Manhattan and got to know many families of shells. The family that "did me in" were the cones, and I have gradually amassed a very fine collection. They have become my very favorite shells. As an artist, I continue to be inspired in my work by beautiful seashells. I am happy to say that I have learned some Latin - the bottom line is - don't be afraid to learn to pronounce Bathybembix argenteonitens - you will be directed to many happy hours with the marvelous mollusk.

(We thank NYSC President Al Scarpetti for sharing with us the story of his start in shelling. We encourage each of you to send us YOUR story - we will print it, and Nick Katsaras, I'm ready to write your story down for you! Later in this issue, we have the obituaries of Waverley H. Harmon and Walter H. Jacobs. In these accounts are a brief mention of how they became interested in shells - let us add yours to the NOTES before it has to be done posthumously. And I am very glad to reprint the story of the founding of the New York Shell Club by the co-founder, Walter Jacobs, as first published in NYSC NOTES, No. 28, January 1957). ws

---

Since Al has mentioned shell shops in Manhattan, and I had a telephone call the other day asking where shells could be purchased in Manhattan, it might be worth noting that there are a couple of shops that sell shells in the South Street Sea-port area (I hope that's written down correctly) and Eisenberg used to have a shop on East 57th Street that sold shells - can anyone tell us what the status is of this shop? I can verify that there are TWO shops on Columbus Avenue, one north and one south of the American Museum of Natural History. Maxilla and Mandible, between 81st and 82nd on Columbus, sells all sorts of natural history objects. I must confess that I've never been inside, since the high prices have dampened my interest in entering the shop. I know the shop has expanded its square footage in recent years, so it must be selling shells and other items. The second shop is called Sea Shell Boutique, 208A Columbus (south of 70th St.) "houses thousands of earrings, necklaces and figurines in a 3 1/2 x 19 foot shop".

ws

BOOKS IN REVIEW

by Walter Sage, AMNH

Seashells on Stamps by Renato Moscatelli. 1992. Volume 1 (text), 439 pp., Volume 2 (illustrations and index), 269 pp. Privately published in Brazil by the author. Available from American Malacologists, Inc., at US $60.00 (postage paid).

Over the years there have been several books published on shells and stamps. All have been useful to the many collectors who have been interested in both, but I can begin by stating that none of the previous works have been as comprehensive or as well crafted as this two volume treatise by a noted Brazilian conchologist. The present set has as its foundation a 1984 Portuguese edition (now sold out) - I would feel confident in saying that all those we know who are interested in shells or stamps or both will find this the book they have always wanted to own.

I can best summarize these volumes by quoting from the press release supplied by the author when he sent the volumes to me this past June. The set is a monument to the author's energy and fortitude, as he continued to work on the book as he battled the cancer that finally claimed his life on July 31. I am certain that I will be among many who will find this book an invaluable tool, as well as fun to use. Especially noteworthy is the fact that the author has listed the species of mollusks portrayed on shell stamps in systematic order - a most useful feature.

To quote:"A long awaited work is finally available to the conchologist and philatelist..... This indispensable work is divided into two volumes: the 439 page first volume contains careful descriptions of 450 shell species with such information as the shell's scientific name, its author, its popular name, and its synonyms. Enriching the detailed description on each shell is also information on average size, range, record sizes, biological information, as well as remarks and notes of each shell depicted on the stamps, including philatelic data on all the shell stamps, emitted up to printing. Each stamp is also identified with its Yvert et Tellier, Scott, and Michel catalog number.

The 250 page second volume contains over 1,200 photographs of all the existing shell stamps printed on glossy paper and in full color. The second volume also presents various postmarks and cancellations in which shells appear.

The minutely researched work was divided in two volumes in order to facilitate use and research by eliminating constant page turning and allowing the reader to have both the illustration and description at hand.

The edition is softbound and edited by the author, 15 x 21 cm (6" x 8").... This outstanding and unique edition does not conform to your normal standards. It is an indispensable research tool that cannot be left out of any serious library and that was lacking in today's specialized literature. It is the only edition to contain all shell stamps in color."

Whether or not you collect shell stamps, these volumes are a joy to possess and great fun to work with. I am amazed at the wealth of information Sr. Moscatelli has shared with us, and congratulate him posthumously on a job well done. I personally don not collect shell stamps, but have to confess that these volumes could easily make me into a "malacophilatelist" - perhaps this is the most welcome accolade an author could wish for or expect. I will treasure this treatise, and hope to be able to spend the time with shells in hand, that will be necessary to appreciate the volumes to their fullest.

WS

Neptune's Garden - Shells A to Z by Wendy Frost. 1992. Little, Brown and Company, New York. 96 pp., 275 hand colored illustrations. hard cover. $19.95.

One of the most pleasantly surprising and charming books to cross my desk in a long while reached me this June. I must admit that just from hearing the title I was prepared for another children's book, but this slim volume is much more just shells for the beginner. The author, an Australian native who now lives in Manhattan, is a professional artist and illustrator, whose love for natural objects clearly shows in the meticulous care with which she shares with us her love for shells. She has taken the shells she has chosen to talk about and illustrate from those she collected as a child, those she has gathered in this country, and those she has been given. She has taken the trouble to learn scientific facts about the shells she loves - it is very satisfying to page through this book and appreciate the beauty of the shells and her special talents as an artist.

Not only does the author arrange her special shells alphabetically in a particularly appealing way; she has selected other sea creatrues she considers special, discusses various ways man has used shells as ornament, in ritual, and for food, and even gives some delightful recipes that anyone could prepare. I feel certain that even the most seasoned professional will find this book stimulating.

From abalone to zebra volute, the reader will be captivated by the choices Ms. Frost has made. We all can identify with cowries and cones, harps and limpets, murex, oysters, and tritons, and the reader will find this book envigorating. A beginner will likely discover in the book the "force" to learn more. Tucker Abbott is correct in saying that this is a "children's book for adults", but it is much more than that. Go out and buy it - you'll join me in thanking the author for such an enjoyable read. Read the narrative, enjoy the illustrations, try the recipes - you'll find them worth the rather steep price of $19.95. WS

The Encyclopedia of Seashells by Gary Rosenberg. 1992. Dorset Press, New York. 224 pp., hard cover, many color photos. $19.95.

One of the great book "bargains" to come out in recent years is this superbly crafted, fact-filled volume that will surely serve as a primary reference book for all interested in even the smallest way in mollusks. There is surely "something for everyone" and we will all find this an excellent introduction to the study of mollusks as well as a guide to many molluscan families.

The author has chosen to discuss and illustrate 250 species of mollusks, covering as many marine families as possible, in a compact and informative fashion. The 14-page introduction discusses what a mollusk is, explaining binominal nomenclature; and treats relationships and diversity, species, family, and classification. The bulk of the text is devoted to the species accounts, beginning with more primitive snails, working through shelled opisthobranchs, then bivalves, scaphopods, chitons, and cephalopods. Treatment begins with family, then genus and species with author and date, common name, size, distribution, discussion, and references. Dr. Rosenberg has obviously given great care to the arrangement, and we can be grateful for this worthwhile addition to molluscan literature. One publisher's error should be indicated - instead of Pyramidella acus on page 111, the illustration of Cerithiella metula on p. 84 has been repeated in reverse.

The final section is entitled "Seashells Through the Ages", and covers culture and commerce, religion, folklore and mythology, and collecting shells. In this last segment are included notes on computerizing a collection. Supplementary material includes a geographical index to shell books, glossary, bibliography, and an index to the shells included in the body of the text.

This is a book that will provide the reader with hours of learning and should encourage the reader to continue the study of mollusks. We can enjoy the book while marveling at the wonders of nature, and appreciate the beauty of the molluscan shell as we learn about these creations, and all at a most reasonable price. I heartily recommend that all of us interested in mollusks purchase this volume as quickly as possible - don't put off that learning experience. WS

IN MEMORIAM - Waverley H. Harmon, September 26, 1896 - June 15, 1992

Mrs. Waverley Harmon, formerly of 464 Riverside Drive in Manhattan, passed to her greater reward after approximately 18 months of failing health. She had fallen at home and broken a hip about two years ago, and never fully recovered. Prior to that accident, Mrs. Harmon had been very active, and I had the privilege of meeting for dinner at her apartment several times, and have enjoyed the opportunity to view her very special shell collection on several occasions.

In the company of her late husband, Francis Stuart Harmon, Waverley had been seriously collecting shells since they traveled to Zanzibar in 1962. I think that it was soon after this trip that the Harmons joined the New York Shell Club, becoming active members rather quickly. Mr. Harmon gave several talks to the club on their trips over a period of years, and he also wrote various articles on their travels , including items in NOTES 156 (1969), 158, 159, 160 (1970). Mrs. Harmon often made substantial donations of shells to the club's annual auction - members looked forward eagerly to the shells she provided. It has been related to me that the club had never had the programs or shell donations before the Harmons were so generous. Mr. Harmon had passed away in April, 1977 and his obituary was in NOTES No. 232.

Waverley Harmon was truly a Southern gentlewoman, both by her birth in Richmond, Virginia, and her breeding and temperament. Mr. Harmon also was a Southerner, being from Mississippi, and I'm sorry I never made his acquaintance. My first meeting with Mrs. Harmon was just a few months after I came to AMNH, I think in the Spring of 1984. I was to come to dinner with her that evening, and chose to drive into Manhattan that day. I still had Kentucky plates on the car, and as it turned out, I was ticketed for parking in a crosswalk (which I am careful not to do) and the car was towed away not 15 minutes after I had parked about 7 AM. ALL this I didn't learn until later that evening, when I discovered the car was gone. After calling and learning it had been towed to the garage on 12th Avenue, I went on to dinner with Mrs. Harmon. After dinner and while enjoying her shells, I related the story and said that I had to pick up the car the next morning. After delicately inquiring at to my financial situation (very poor at that moment) she insisted that I borrow the $75.00 towing fee plus the parking ticket. You can well imagine my gratitude, and understand that I have a very high regard for Mrs. Harmon. Apart from that personal vignette, Waverley Harmon was an intelligent, charming person, interested in life, her shells, bridge, and her family.

The Harmon shell collection is most interesting from two standpoints - there are many rare shells represented, especially Cypraeidae; and there are many unusual species represented, both common and uncommon, that were collected by Mr. & Mrs. Harmon on their various trips - Zanzibar, Pakistan, India, Burma, Sri Lanka, Indonesia, Senegal, Ireland, Scotland, Sanibel (Florida), South Africa, Philippines, Guadeloupe, Tobago, Great Barrier Reef (Australia), New Zealand, and probably others of which I am not aware. The collection has been willed to the American Museum of Natural History, New York City, where it will be cataloged and added to the study collection and will be available for research and exhibit. Contributions in her memory may be sent to Walter Sage, American Museum of Natural History - please include a note stating "For the Waverley H. Harmon Collection." It is a fitting tribute that her collection will be available for research and to share the beauty of shells with the public. We are proud and happy to have known Waverley H. Harmon. We thank the family for their confidence in us at AMNH by carrying out her wishes and for asking that contributions come to AMNH.

We are at the moment changing one section of the Hall of Mollusks and Our World, and we intend to use as many of Mrs. Harmon's shells for that display as we can. That will be a wonderful way to show our appreciation of this very special lady.

Walter Sage - AMNH

IN MEMORIAM - Dr. Walter H. Jacobs, November 7, 1903 - August 20, 1992

Dr. Walter H. Jacobs, residing at 585 West End Avenue, Manhattan, passed from this life after a very short stay in the hospital. Walter had suffered a particularly severe bout with a flu-like illness this past Spring, and had never recovered his vitality. But he had continued his zest for life, and interest in all around him right up to his final moments. We are most fortunate to have known this gentle extrovert who happened to become interested in shells.

The reprinted article following this note will tell you more about Walter Jacobs, but we must state here that he was co-founder of the New York Shell Club, back in 1949, with Morris Karl Jacobson, who preceded Walter in death in 1980. It is a fitting testament to Walter's intellectual curiosity that it was he who initiated the meeting with Karl that heralded the advent of the NYSC. I have personally known Walter Jacobs only a few years, but they have been good years, as it was our privilege to have him coming in once a week as a volunteer to sort shells or unpack new donations. I still have a letter from him from back in 1983, where he wrote about some statement of mine at a talk to the shell club. I reponded to Walter's letter, and when he retired from his life-long profession of dentistry in 1980, he included the American Museum as one of his volunteer jobs. He and his wife Fritzi began taking courses at Hunter College, where Walter made geology his specialty. In addition to his studies and volunteering at AMNH, he also volunteered time in the medical libraries of two local hospitals and took time to paint with water colors - I have two of his pictures and will treasure them and the memories they recall of a very special individual.

Walter took his dental degree in 1929 and in 1930 established what became a most successful private practice. He was a member of several dental societies, and wrote a large number of professional articles on dental subjects. His first specialty, as I understand it, was children's dentistry, but perhaps the first of his many "claims to fame" is that he devised the protective mouthpieces used to guard the teeth and mouth of boxers. For 51 years he manufactured thousands of individual mouthpieces for boxers, including Jack Dempsey, Joe Louis, Floyd Patterson, and Larry Holmes. One of his hobbies was to make plaster casts of the fists of various boxers, a collection of hundreds of pieces Walter donated to the Museum of the City of New York and the Boxing Hall of Fame, Canastota, NY.

In addition to founding the New York Shell Club with Karl Jacobson, Walter was interested in many aspects of natural history. He was interested in geology and paleontology, shells and sea creatures, birds, invertebrates, and animals. He was a charter member of the American Revolution Round Table, and had donated an extensive library on the American Revolution to the Society. Walter and his wife Fritzi led a full life, and are excellent models for the rest of us who have not yet gained the luxury of retirement. He and his wife celebrated 60 years of a most happy marriage. Walter is survived by his wife and three sons, all who live in the metropolitan New York area.

It was my great privilege to know Walter Jacobs, and to have worked with him in his retirement years. I know nobody who lived life more fully than Walter, no one who looked forward more eagerly to the new day, that new experience, that new joy to be experienced. I will never forget his zest for life, coupled so intimately with knowledge of life's realities. I hope that I never forget his words of wisdom, his special sayings that have added much to our freindship. I always got a card from them when they were in Florida, always of a beautiful girl in a bikini, with words to the effect that there must be shells somewhere down there, but he was too busy to look for them! The cards always ended with the words "Keep on Punchin'" and one can say that of Walter - he never stopped punchin'and it's a worthwhile reminder to us all - Walter - Keep on Punchin'!

Walter Sage - AMNH

The Formation of the New York Shell Club by Dr. Walter H. Jacobs

(reprinted from New York Shell Club NOTES No. 28, January 1957)

In this, the ninth year of our existence, it might be appropriate that a short history of our organization be read so that posterity will ever be acquainted with the formation of the New York Shell Club.

In the Fall of 1948, after a summer spent on and about the beaches of Connecticut, the various common shells became a challenge to my modest knowledge of natural history. Books at the library did not help much with the problems of identification. The next call was to the American Museum [of Natural History]. I was advised that no group or club was active in the city that was interested in shells, but information was given concerning the American Malacological Union. We were told to contact Mrs. Imogene Robertson, the secretary, at Buffalo. Mrs. Robertson answered that she too knew of no organization interested in Mollusca, in or about New York, but she did advise that I get in touch with a local shell enthusiast, Mr. Morris K. Jacobson of Rockaway Beach. We called Mr. J., our interest in shells was explained and an appointment was made to meet one evening in Grand Central Station, near the information booth, each of us to carry an identifying object, of course a shell!!

We met Mr. Jacobson, and in the local Childs Restaurant on 42nd Street, we discussed shells, the need for a local shell club and how to go about the formation of such a group. It was decided to try to obtain a meeting place at the American Museum and to post a notice there, also to post notices at the local college science departments and any other place that might contact shell people! The organizational meeting was called for Sunday, January 30, 1949, in Room 129 at the AMNH, 3 P.M. Nine persons answered the call, present were: Mr. & Mrs. Entwhistle, Mr. George Hubbell, Miss Joan Gordon, Mr. Morris Jacobson, Mr. Anthony D'Attilio, Mr. Fred Tobleman, Mr. George Jacobs, Dr. Walter Jacobs. Here are some of the minutes of that meeting: Mr. Jacobson was appointed acting President and Dr. Jacobs acting Secretary. It was agreed that the name of the organization should be the New York Shell Club. It was further agreed that a simple constitution be drawn up with provisions to include field trips for revising the list of New York Mollusca. Membership in the club is open to all interested in the subject. The program for the next meeting was to include a talk on radulae by Mr. Tobleman and on good collecting localities in New York by Mr. Jacobson. Mr. Tobleman brought an interesting Elliptio to show the group and Mr. D'Attilio showed an interesting shell from Japan. The meeting was adjourned at 4:30.

The second organization meeting of the New York Shell Club was held in Room 129 of the American Museum on Sunday, February 27, 1949. Present were: Mr. Morris K. Jacobson, Mr. Fred Tobleman, Mr. George Jacobs, Dr. Walter Jacobs, Mr. Mole, Mr. & Mrs. George Wilmott, Mr. & Mrs. D'Attilio, Mr. & Mrs. Entwhistle, Mr. & Mrs. LeMond, Miss Henrietta Schroeder, Mr. George Marks and Mr. Gundlach. These members and the group that were present at the first meeting were recognized as charter members of the club. The two acting officers were elected for the next year, with Mr. D'Attilio as the treasurer. Here is the financial report made at that meeting: Dues collected $13, disbursements for post cards $1.

And so the New York Shell Club was started.

We are indebted to Walter Jacobs for two special reasons - first, for founding NYSC with Karl Jacobson, and second, for providing us with the history of the founding of NYSC. Let us remember him fondly as we continue our activities. WS

Be sure to mark down the dates and times of the NYSC meetings during the new club year. Check the inside cover of this issue and page 1 - several dates and times have had to be changed for various reasons. We want you to attend meetings!
WS

Collecting Marine Mollusks in Florida - Rules of the Game

by William G. Lyons, Florida Marine Research Institute
(reprinted from AMU News, Volume 23, Number 1 - April 1992

Shell collecting is recognized by the State of Florida as a legitimate recreational activity; but, like most other recreational activities, there are rules. Florida is among the fastest growing states in the nation. Hundreds of new residents arrive every week, and most of them settle near the coast, where they are joined by millions of tourists that visit Florida annually. Inevitably, such growth has brought with it increasing pressures upon the populations of mollusks, fishes, and other organisms that inhabit the marine waters of the state. Florida has enacted laws and regulations to manage and protect these resources, and fees have been established to help fund that protection.

The following comments are summarized from Florida laws and fishery regulations and are provided to assist you during your visits to Florida. If you plan to collect any marine shells, following the rules as listed below can ensure that your trip will be more productive and enjoyable.

A State of Florida recreational saltwater fishing license is required "to take, attempt to take, or possess" any marine fish for noncommercial purposes. Florida law defines marine fish as "any saltwater species of finfish... and marine invertebrates in the classes Gastropoda, Bivalvia, and Crustacea, or the phylum Echinodermata, but does not include nonliving shells or echinoderms." The license must be in the personal possession of the person "taking, attempting to take, or possessing marine fish" and must be exhibited to any authorized law enforcement officer upon request.

EXCEPTIONS: A saltwater fishing license is not required for any person under 16 years of age; for any Florida resident 65 years of age or older; or for any Florida resident fishing in saltwater from land or from any structure affixed to the land. This last exception has been interpreted to include wading in water four feet deep or less that is contiguous to land. However, if you travel by boat to the place where you wade, you need the license. Likewise, if you collect while snorkeling or diving, you need the license. Members of the Armed Forces and Disabled Veterans may be eligible for other exceptions.

The bottom line: Florida residents do not need a license to collect LIVE shells while wading from land, but nonresidents do need a license. Both residents and nonresidents need a license to collect living gastropods and bivalves using any other means of collection, unless they qualify for other exceptions.

Saltwater fishing licenses can be purchased from county tax collectors or from other authorized vendors. Fees for Florida residents are $10 for a 10-day license and $12 for a 1-year license. For nonresidents of the state, fees are $5 for a 3-day license, $15 for a 7-day license, and $30 for a 1-year license. The tax collector is also required to charge $1.50 to defray the cost of issuance.

Feeling lucky? The civil penalty for a violation of license requirements is $50 plus the cost of the ANNUAL license fee involved in the infraction. That's for an uncontested citation. If anyone chooses or is required to appear before county court to contest a citation and the infraction is proved, the court may impose a civil penalty of up to $500. That would be a handsome donation to the budgetary balancing act of the State of Florida.

Other things to remember: Florida marine fisheries regulations prohibit the collection of stony corals, sea fand (gorgonians), queen or pinch conchs (Strombus gigas), long-spined black urchins (Diadema antillarum), and Bahama starfish (Oreaster reticulatus). These species usually occur in the Florida Keys, but strays are sometimes found off both Florida coasts. Look, but don't touch!

A bag limit of two living specimens per day of any single species of mollusk or echinoderm is enforced within the municipal limits of the City of Sanibel, FL. However, oysters (*Crassostrea virginica*), hard clams (*Mercenaria* spp.), venus clams (*Macrocallista nimbosa*), bay scallops (*Argopecten irradians*) and coquinas (*Donax* spp.) are excluded from the Sanibel bag limit. Bag limits of 20 individuals per day are also imposed statewide on "marine life" for the aquarium trade, specifically including *Spondylus americanus*, *Lima scabra*, and *Lima lima*. Finally, live shelling is prohibited in state parks and marine sanctuaries. Local collectors should be able to tell you where shelling is regulated or prohibited. And, of **course**, the burden is on YOU! If you're not sure, ask!!

A note printed in *The Festivus*, Volume 24, Number 6, page 62, June 1992 reads:

A note in the May 28, 1991 Los Angeles *Times* reported that the Royal Australian Navy would be relocating 6000 giant clams, *Tridacna gigas* (Linne, 1758). The clams, an endangered species, have multiplied to the point of overcrowding as a result of a breeding project at Orpheus Island off the northern Queensland coast. The succesful breeding project, undertaken by James Cook University, has resulted in severe overcrowding of 9000 specimens, the oldest of which weigh 18 to 22 pounds. The navy was to move the 6000 clams to other reefs in the area. (There was no mention made of the age or size of these clams. It would be interesting to know how many years it took to reach that weight and size).

You've read elsewhere about the African snails that were introduced into the United States through Kennedy Airport in New York, then to Florida and other states. Now we have a report from the less than reliable tabloid *Weekly World News* entitled "Two Villages Wiped Out by Giant Killer Snails". It goes on:

"Hundreds of giant snails are on a rampage across West Africa, devouring everything in their path including plants, andimals and even men, women and children." "They surround their helpless prey and close in for the kill. Nothing survives their huge appetite. The ravenous beasts are about the size of a small dog, eat about one-fourth of their body weight daily and produce about 1,000 offspring every month. They hunt in packs that often number into the hundreds.

They wiped out two villages near the towns of Balala and Kalabana, north of Freetown [where?], said inspector Zambou Retta. "we have found only one survivor and half of his right arm has been gnawed off." The huge slimy snails are silent assassins who sneak up on their unsuspecting victims and catch them off guard. They are the larger species of the *Archacatina* (sic) *marginata*, commonly known as the banana rasp snail. "They attack like piranhas leaving nothing but the skeletons of their victims behind," said Inspector Retta. An estimated 32 men, 21 women and 36 children were attacked and eaten as they slept in the village of Kalabana. At least 103 more people died in surrounding villages, alond with dozens of horses, cows, pigs, dogs, and other animals. (I have nothing to add to this report by way of verification, but I would suspect that there is no truth to this report - if you believe this, I have a bridge you should buy). ws

---

Newly available or soon to be published books include Volutes by Poppe & Goto; Red Sea bivalves by P. Graham Oliver; Australian bivalves by Thora Whitehead and Kevin Lamprell; a review of the genus *Chicoreus* by Roland Houart; Conidae described from 1758 to 1840 by Alan J. Kohn; Conidae of Southeast Asia by Wee; Marine Shells of Northeast Florida by Harry G. Lee and the Jacksonville Shell Club, Inc. (728 species will be discussed, with illustrations of approximately 200 of the least-known ones; also many color photos of popular and spectacular species. Publication price is expected to be $14.95; date - later in 1992. We have hears nothing further about the cone books that are expected, but we have seen additional new species of Conidae named in various publications. The new books may have to wait until all these descriptions are published. ws

Stuck on Mussels

A mollusk's natural grasp of adhesive science captivates biochemists

By IVAN AMATO

Isaac Newton himself floated the challenge in 1704. "There are agents in Nature able to make the particles of joints stick together by a very strong attraction, and it is the business of experimental philosophy to find them out," he wrote in his *Opticks*.

J. Herbert Waite, a modern-day experimental philosopher, took Newton's mandate to heart.

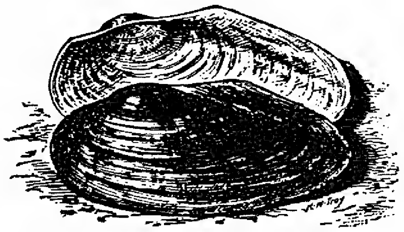
"Adhesives have become an integral part of our lives, extending from the cradle to the grave," observes Waite, a marine biochemist at the University of Delaware in Lewes. "As infants, we wear disposable diapers with tape closures, and as corpses, our orifices are sealed by undertakers with cyanoacrylates." On a less macabre note, manufacturers of everything from shoes to cars to furniture rely increasingly on glues. And as glue use spreads, adhesive failure causes far more headaches than it did in the days when nails, screws and welds did most of the joining.

For the past 20 years, Waite has made it his business to learn how the marine mussel *Mytilus edulis*—the indigo-shelled bivalve that often ends up in soups and appetizers — manufactures an underwater adhesive that ranks with the world's best. No synthetic glue designed for watery settings comes close to rivaling nature's own, he says. Sooner or later, water's many acts of adhesive vandalism cause synthetically bonded surfaces to come unglued, usually with the help of mechanical stresses. Water can chemically degrade or deform adhesive materials. Moisture can form a weak boundary between bonding surfaces. In cold settings, freezing and thawing can pry glued parts apart. Like oil and vinegar, adhesion and water just don't seem to mix.

And that makes biological adhesives all the more enviable, Waite says. "All living things in nature are exquisitely assembled from adhesively bonded parts," he noted in October at a meeting on biomolecular materials in Washington, D.C. Despite constant encounters with water, plants and animals need no nuts, nails or bolts to keep from falling apart.

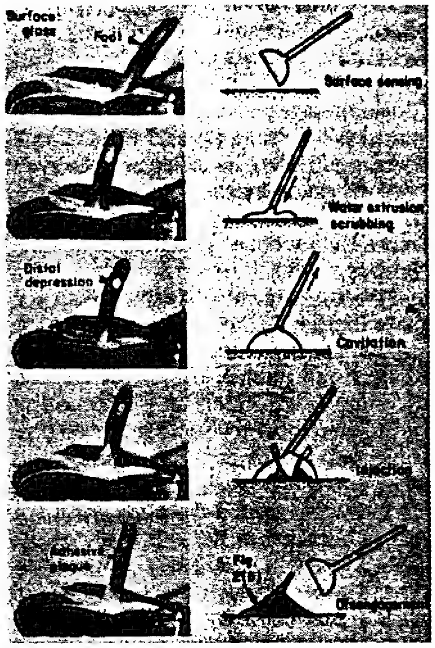
If nature can make underwater adhesives without human assistance, what might humans concoct with assistance from nature? Water abounds in many places where reliable adhesives would be quite handy. Doctors, for instance, have been eyeing surgical glue for use in tissue grafts, sutureless operations and dental applications (SN: 4/11/87, p.234), and the Defense Department could use environmentally sound, corrosion-resistant, slime-deterring, barnacle-repelling coatings and adhesives for marine applications. It costs a lot of tax dollars to drydock an aircraft carrier for hull repairs.

Yet Waite has found that mussels don't divulge their sticky secrets without plenty of prying.



To a mussel, adhesion means everything. Failure to cling to rocks or other stable surfaces in the turbulent ocean would doom these shelly creatures to rapid pulverization. For the past 300 million years or so, mussels and other bivalves have largely avoided that fate with a remarkable material called byssus, woven into tough, fibrous threads that enable the animals to anchor themselves —like rock climbers on a windswept cliff—to underwater strongholds. Neither wave, nor salt, nor tide of night can tear a mussel from its chosen site.

Byssus binds more powerfully, more rapidly and more persistently to more hard surfaces than any synthetic adhesive for underwater applications, Waite says. "This animal is at the cutting edge of marine adhesive technology."



Waite

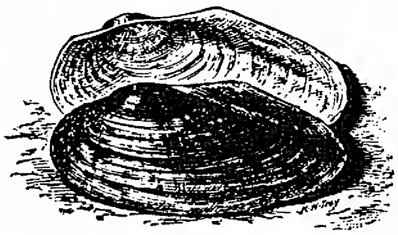
The mussel's plunger-like foot performs many jobs during the processing and deposition of byssus threads.

The mussel adhesive, which Waite likens to "externalized tendons," derives its material virtues both from its precursor ingredients and from the intricate processes the mussel uses to transform those precursors into byssus lifelines. Though the biochemical picture of byssus remains incomplete, it has already inspired BioPolymers, Inc., in Farmington, Conn., to make and market a research glue based on mussel-derived proteins, which biologists can use for attaching cells to surfaces in moist environments such as petri dishes. And Genex Corp. in Gaithersburg, Md., announced this summer it had cloned the mussel gene coding for a precursor of byssus' major protein component — an advance that might someday lead to mass production of synthetic byssus. Extracting and purifying the naturally occurring substance from mussels takes a great deal of time, effort and money.

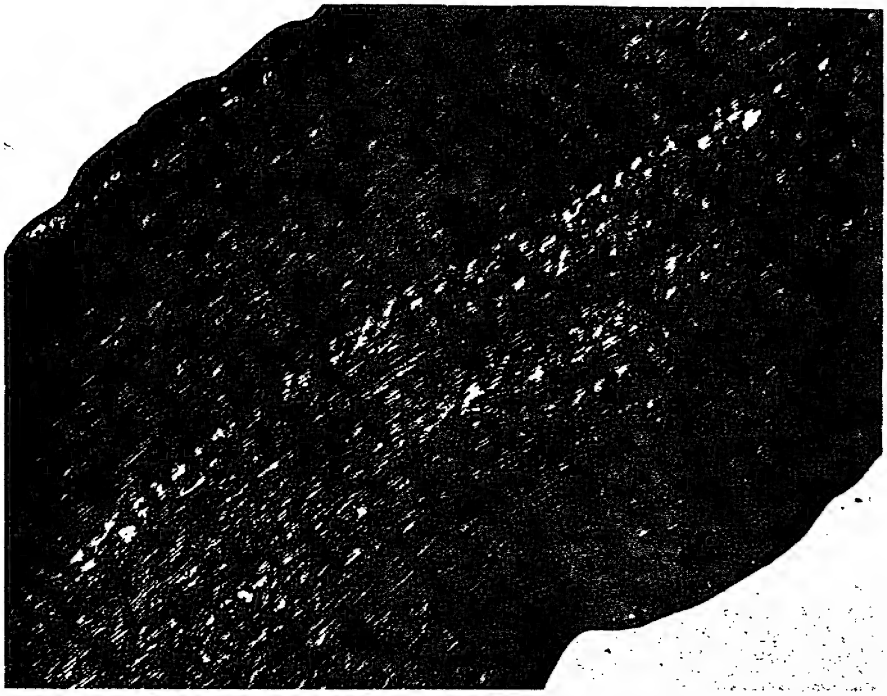
Like the silk threads of spiders and silkworms, mussel byssus consists of highly insoluble polymer fibers that form as liquid precursor ingredients get pushed through thin ducts. It also resembles the fiber-reinforced composite materials used in tennis rackets and aircraft. The bioadhesive fibers—made of keratin, the same rod-shaped protein molecules that make fingernails and hooves so tough – run through a resin component consisting primarily of a polyphenolic protein. Catalyzed by an enzyme called catechol oxidase, the resin's protein molecules link into an intertwined matrix that imprisons the keratin-based reinforcing fibers. The mussel coats each thread with a protective varnish, also made of polyphenolic protein molecules linked by catechol oxidase. With a varnish coat some 10 to 20 microns thick, each thread measures about 100 microns in diameter – about the same width as a human whisker.

After years of painstaking work, Waite and his colleagues have determined that the polyphenolic resin protein consists of nearly identical linked segments – each a string of 10 amino acids – repeated 80 times. The protein contains an abundance of specific amino acids, such as serine and threonine, that have "sticky" chemical appendages known as hydroxyl groups, which consist of an oxygen and a hydrogen atom. It is also rich in the amino acids tyrosine and proline. Enzymes modify the tyrosine and proline so that they, too, have hydroxyl groups or chemically related quinone components that allow the protein to link up readily with nearby resin molecules.

"It's a very unusual protein," says Robert L. Strausberg, director of research at Genex.

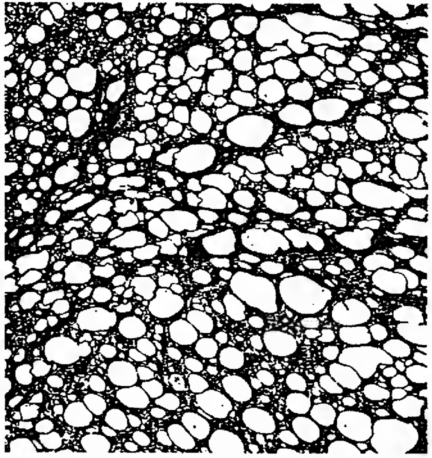


But an understanding of biochemical components does not an underwater adhesive make, Waite says. It's like trying to prepare a gourmet dish with an ingredient list but no recipe.



Photos: Waite

Cross section through the long axis of a byssus thread shows polyphenolic resin core (dark) with reinforcing keratin fibers, which appear as thin, striped inclusions.



Cellular, foam-like structure of the adhesive thread where it anchors to a polyethylene surface.

To find out just how mussels whip up their finished product from precursor ingredients, Waite has spent much of the last decade watching the shelly chefs at work.

Plucking mussels from a nearby bay and scrutinizing them in the lab, he has observed that they make and stockpile a "preadhesive" – the resin protein, fiber protein and catalyst – in a special gland, converting these raw ingredients into byssus as the need arises. But before that conversion takes place, the animal must tackle several chores, starting with the selection of a suitable anchoring site.

To assess a site, it scans the surface with its "foot," an incredibly versatile appendage resembling a rubber plunger. Waite suspects that as the mussel pulls its foot along the surface, it gets a "feeling" for the amount of resistance and can thus sense the potential for a secure bond.

Even if the surface passes the resistance test, moisture, grit, microbes and other undesirables can thwart adhesive bonding, either by physically blocking the surface or by chemically degrading the bonds that do form. So the mussel cleans house, using its foot like a broom to sweep away loose particles. Next, the water around the bonding site must go. That's a formidable task for a spineless creature surrounded by ocean, but the all-purpose foot paves the way. As the mussel presses its foot down, the flattening plunger squeezes water away from the surface. The mussel then contracts its foot muscles to enlarge the interior of the plunger, creating a vacuum in the expelled water's stead.

The preadhesive ingredients then surge through tubules connecting the storage gland to the plunger. From there they flow to a half-dozen injection ports located in the top of the plunger's bell until they finally reach the vacuum-surrounded anchoring site.

In less than a minute, the resin near the anchoring surface transforms into a foamy network of cell-like bubbles. Making foams usually requires some sort of gaseous blowing agent, but Waite says

Continued on p.15

Continued from p.9

mussels manage to fabricate the sticky foam without any blowing agent. Just how they do this remains a mystery, he adds.

The bubbles, with walls just five-millionths of a centimeter thick and one-half micron in diameter, comprise very little material. Yet the foam's marshmallow texture enables it to withstand relentless compression from pounding waves, tugging from retreating tides, and virtually all other forces (except Waite's yanking when he harvests them) that would break the adhesive will of almost any other glue.

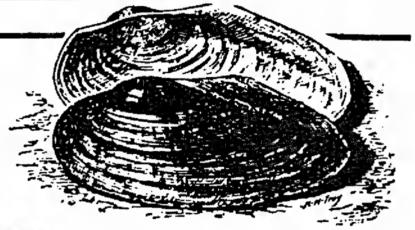
With its beachhead thus secured, the mussel uses its foot like an industrial injection-mold machine that shapes plastic products. Muscle action flattens the foot into a spatula and then curves the edges toward one another to form a hollow cylinder. The mussel pumps additional preadhesive into this foot cavity, where each dose of the viscous substance cures into a fine thread in just a few minutes.

By slightly varying the composition of the preadhesive, the mussel gives extra elasticity to byssus threads at the shell end. "It gives them a shock absorber," Waite says. Once the polymers have cured into several-inch threads, they get a coat of varnish.

Waite notes that catechol oxidase – the enzyme that links the protein molecules in both the resin and the varnish – is also used to cure or tan leather and other animal products. He has discovered that mussels possess an unusual abundance of the enzyme. In most catalytic reactions, a single enzyme molecule will process a million or more target molecules. But the mussel resin contains concentrations as high as one catechol oxidase molecule for every two or three polymer molecules.

Waite suspects that the catalyst, as part of "nature's sublime economy," does double duty as a structural component in the threads. He says he knows of no other case in nature where an enzyme also plays a structural role. Whether catechol oxidase actually does so awaits further study.

Waite also suggests that mussel adhesive might qualify as a "smart" material – that is, a material that can change some property, such as its color or stiffness, in response to changing environmental conditions (SN: 3/10/90, p.152). Catechol oxidase uses dissolved oxygen molecules to form the links between polymer molecules. Because turbulent waters provide more oxygen than calmer waters, the curing rate of freshly secreted threads is faster in rougher waters – just when the animal might need to get stuck most quickly.



As more of the mussel's adhesive secrets give way to scientific sleuthing, an industrial supply of mussel-inspired products seems closer to reality. Genex scientists have inserted the gene for the resin protein into yeast cells, which now churn it out in gram-sized batches. By using enzymes extracted from mushrooms or bacteria to mimic the tough-to-get mussel enzymes, the Genex researchers say they can elicit the polymer's adhesive properties.

Animal studies of sutureless wound healing using this recombinant mussel adhesive are encouraging, says Strausberg, who adds that plastic surgery and reuniting severed nerves rank high on the long list of potential applications. "This [adhesive] is one of our major projects," he says. "We think it has a lot of potential."

Synthetic mimics have yet to match the material marvels of natural byssus. But if Waite and others succeed in harnessing mussel power, their efforts could lead to a big, sticky business – a consequence unanticipated even by the far-sighted Newton. □

(Reprinted from *Science News*, No. 139, January 1991)

A Note on Exotic Species by Henry W. Chaney, Santa Barbara Museum

It is highly unlikely that *Tectarius muricatus* was collected from a naturally occurring population in the upper Gulf of California in 1988. To have done so, this common, conspicuous littoral species would have had to escape notice in a region which has seen thousands of accumulated hours of collecting by numerous, dedicated intertidal malacologists during the past half century.

Instead, this report by John Bishop of living specimens being collected from El Golfo de Santa Clara appears to be the classic case of the temporary establishment of an exotic or introduced species. One that was able to survive and to briefly reproduce in a habitat quite foreign to its typical high tidal rocky substrates along the Atlantic coast. In this context, this event is important to record because it adds to the growing list of common species which are being reported from localities far from their expected ranges. In some cases, these dramatic range extensions are perfectly valid, reflecting an increase in collecting activities or a new collecting method. However in many other instances, species have migrated via human activities.

In the present case, the subsequent reproduction and dispersal of *Tectarius* is problematical since the life history of the group is poorly known. However, it only takes a single gravid female and the right conditions to found a colony even if subsequent events make its success short lived.

(Reprinted from *The Festivus*, Vol. 24 (7), July 1992)

INTERESTING GASTROPODS FROM THE 1992 COCOS ISLAND EXPEDITION

HENRY W. CHANEY

Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road,
Santa Barbara, California 93105

During April 1992 the eleventh expedition since 1983 to Isla del Coco, Costa Rica continued an ongoing survey of the marine mollusks from this most interesting outpost of the eastern Pacific. This year's effort was notable in that several new deep water areas were surveyed using both tangle nets and a small dredge. By using a global positioning system (GPS), a small portable device which generates precise geographic coordinates, we were able to quickly and systematically chart our offshore collecting stations and return to them as necessary.

Despite this refined collection methodology we encountered difficulties with the local fishermen who persistently tried to remove our tangle nets and steal the valuable ropes and buoys. This interference resulted in the loss of more than half of the nets and greatly hindered that part of this year's survey.

However overall results were very successful, thanks especially to the efforts of David Mulliner, whose dredge was clearly the "star" of the expedition. As in past trips, mollusks continued to be discovered that were either new to science, new records for the region, or were a significant addition to our existing knowledge of the fauna.

While the new taxa await formal description, several previously known gastropods were collected which are new to the Cocos area (new records) or are of sufficent interest to warrant comment (as additional records). In the following report species are arranged by how they were collected. Reference is also given to mollusks collected originally on previous expeditions but not reported on until additional specimens were acquired this year.

NEW RECORDS: From tangle nets

The most productive region for tangle nets continued to be the vicinity off Bahía Chatham, north Cocos Island. This year, nets placed in 100-120 m on sand and coral rubble yielded the following four records:

Cantharus rehderi Berry, 1962

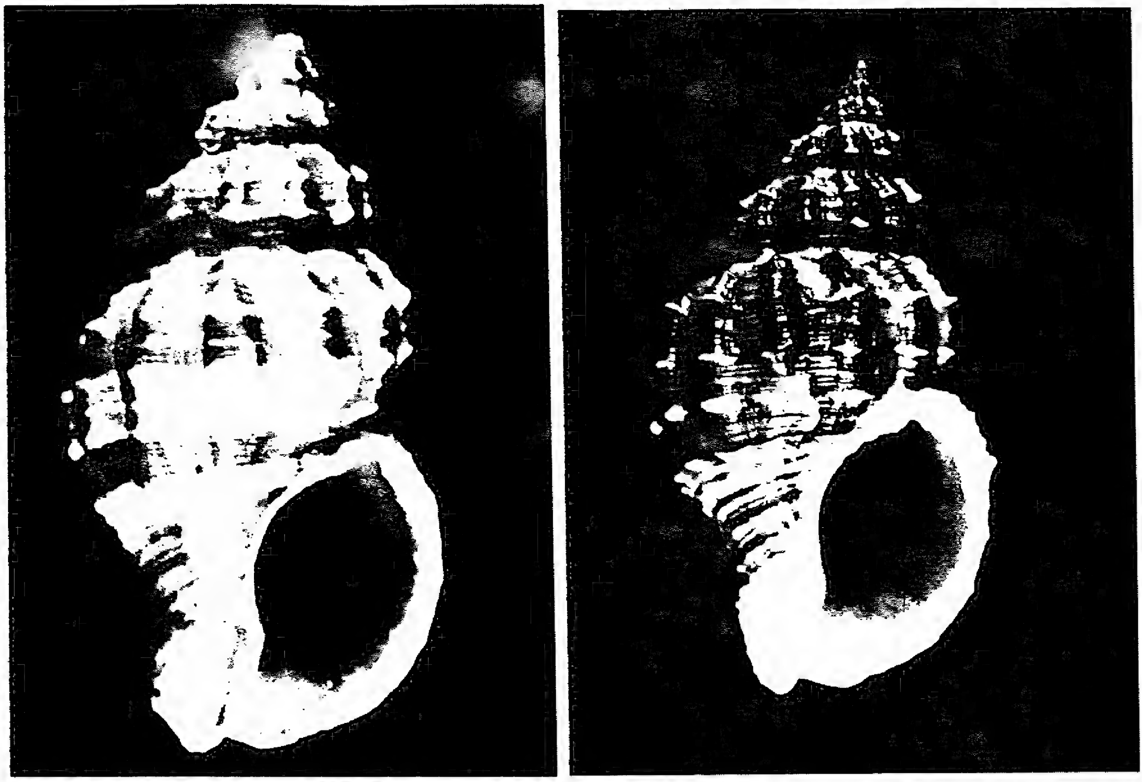
The two living *C. rehderi* netted during April 1992 were the first complete specimens collected during these expeditions (Figures 1-2). Although the type locality is the Bay of Panama, this species has been reported throughout much of the Panamic Province. Those taken earlier were only broken fragments, encrusted by the vermetid *Petaloconchus complicatus* Dall, 1908. Similarly, *Fusinus allyni* McLean, 1970, a Cocos-Galapagan endemic, was another gastropod only found as heavily encrusted dead fragments. However, living *Fusinus* were also collected for the first time in April (Figure 3).

Cotonopsis deroyae (Emerson & D'Attilio, 1969)

Juveniles of *C. deroyae* had been found previously by Donald Shasky off Bahía Chatham but were identified as *C. edentula* (Dall, 1908) and cited as such by Jung (1989). However when compared against live adult specimens collected in April 1992, these juveniles were shown to have similar axial sculpture on the early teleoconch whorls as well as the same color pattern as that of *C. deroyae*. This axial sculpturing then becomes obsolete on later whorls, unlike that on most specimens of *C. endentula*. These adult specimens also differed from adult *C. edentula* by not having shouldered whorls.

As shown by Figure 4 the anterior canals of the two Cocos Island specimens are much shorter in comparison to the typical form from the Galápagos and are much smaller overall. Their morphology

(continued, p. 14, this issue)



Figures 1 & 2. *Cantharus rehderi* Berry, 1962. (1) adult specimen, 54.25 mm, (2) sub-adult, 45.58 mm, SBMNH #55225.

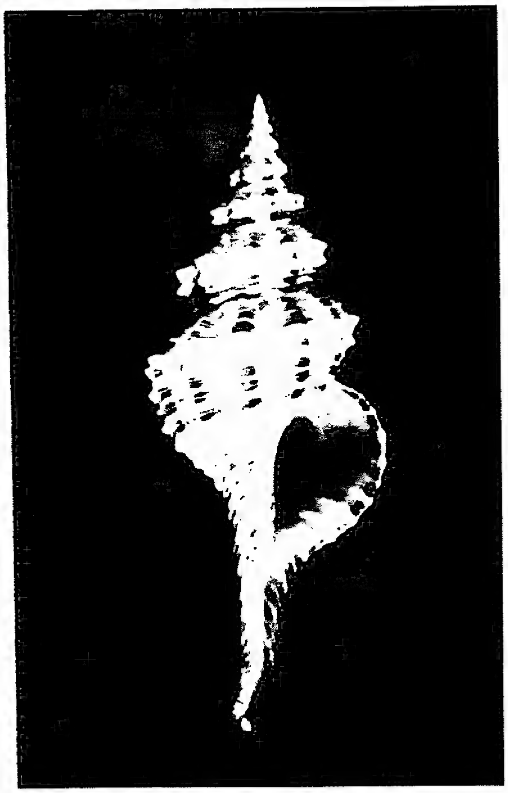


Figure 3. *Fusinus allyni* McLean, 1970. First live specimen collected, 79.12 mm, SBMNH #55226.

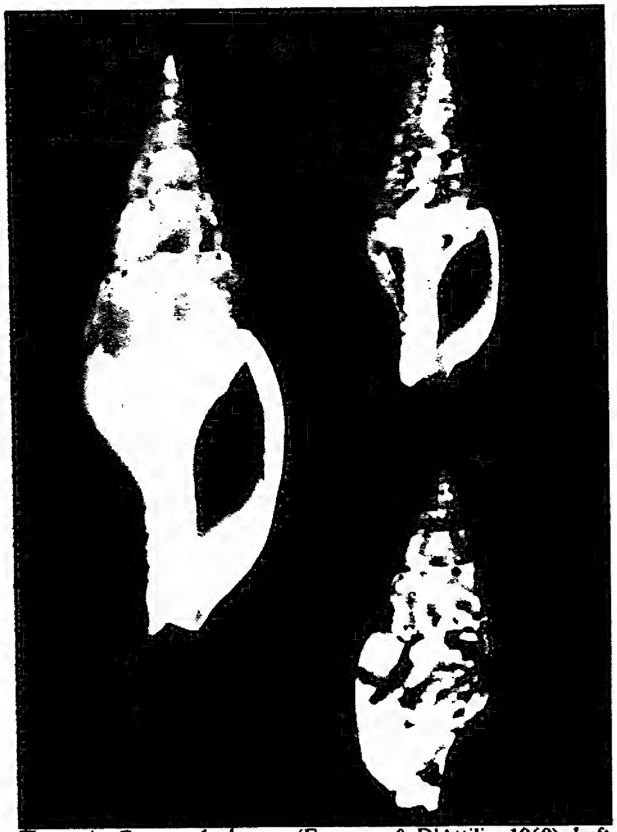


Figure 4. *Cotonopsis deroyae* (Emerson & D'Attilio, 1969). Left specimen from Isla Santa Cruz, Galápagos islands, 47.87 mm, SBMNH #52700. Two specimens at right from Cocos Island, 30.70 mm (top), 27.92 mm (bottom), SBMNH #55227.

more closely conforms to a single specimen figured by Jung (1989) as *Cotonopsis* aff. *deroyae*, collected from Banco Mancora, west of Tumbes, Peru.

Prior to this report, and exclusive of the Peruvian variant, *C. deroyae* was only known from Isla Santa Cruz, Galápagos Island, Ecuador and is regarded as the largest species of the genus (Jung, 1989).

Latiaxis (Babelomurex) santacruzensis Emerson & D'Attilio, 1970

Previously believed to be restricted to the Galápagos Islands, two live specimens of *L. santacruzensis* were collected by Kirstie Kaiser from a tangle net off Bahía Chatham during the February 1991 Cocos expedition. In April 1992 additional specimens were netted from the same locality. Included were two juveniles, a single small adult (Figure 5) and an unusually large specimen, collected by Douglas von Kriegelstein.

Murexiella diomedaea (Dall, 1908)

A single crabbed specimen, netted this year, is the only record of this uncommon muricid from Cocos Island. Previously reported only from the type locality, Albatross Station 3397, in the Gulf of Panama (Keen, 1971; Fair, 1976) the range of this poorly known species was then extended to Baja California by Vokes (1970) and Radwin and D'Attilio (1976). The occurrence of *M. diomedaea* in the Gulf of California was subsequently reviewed by Hertz and D'Attilio (1985).

The present specimen (Figure 6) has longer spines and is more delicate than those figured from mainland localities (Figure 7, for example). It is an immature specimen which has eroded considerably since death.

Neorapana muricata (Broderip, 1832)

A single crabbed specimen was caught by Donald Shasky from a net deployed in 100 m off Bahía Iglesias, east Cocos Island. There has been no previous evidence of this common Panamic species from the island, despite the extensive collecting by diving during the past ten years.

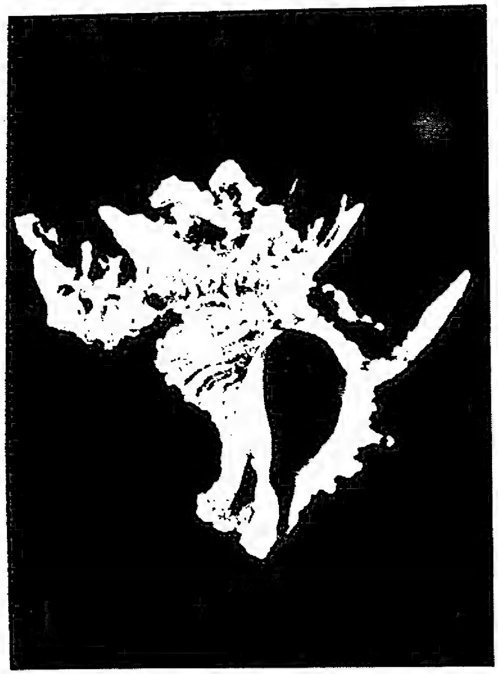
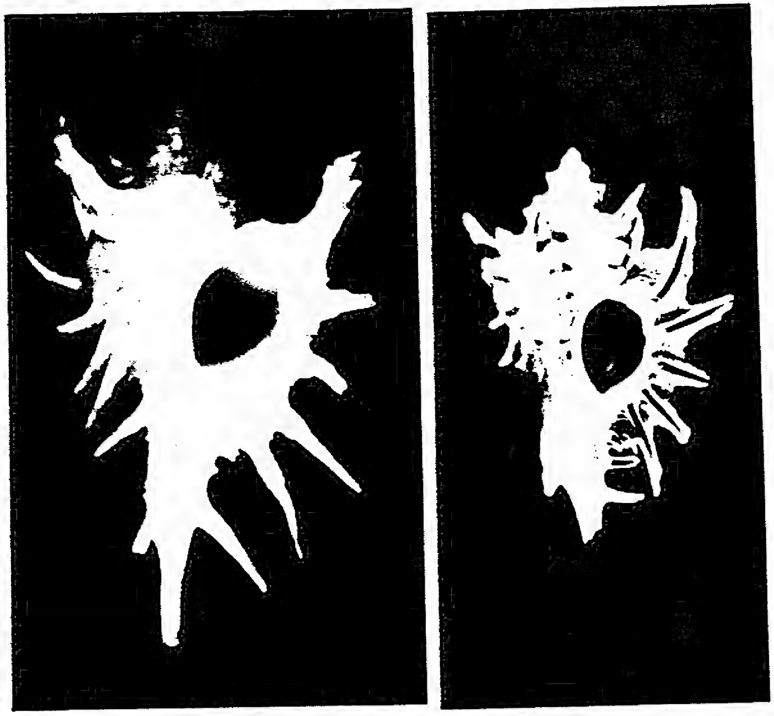


Figure 5. *Latiaxis santacruzensis* Emerson & D'Attilio, 1970. Small adult, 33.65 mm, SBMNH #55228.



Figures 6 & 7. *Murexiella diomedaea* (Dall, 1908). (6) Dead, immature lip, 34.43 mm, SBMNH #55229. (7) From deep water off El Salvador, Robert Foster Collection, 34.13 mm.

NEW RECORDS: With SCUBA

Epitonium (Asperiscala) indistinctum (Sowerby, 1844)

Specimens of *E. indistinctum* have been collected from San Blas, Nayarit, Mexico to the Galápagos, but by 1974 Dushane reported that not more than a dozen specimens had been recorded in the time since the original description. This is the first adult specimen collected during the Cocos Expeditions (Figure 8) although there are several juveniles and fragments, attributable to this species, in the Shasky Collection.

The figured specimen was collected live by Martin Beals at night from 20 m. It was active on clean fine sand in Bahía Wafer, west Cocos Island where it most probably feeds on one of the numerous burrowing cnidarians which are abundant in the bay.

Cancellaria (Bivetiella) pulchra Sowerby, 1832

Although commonly found throughout the Panamic Province from Guaymas to Ecuador, this is the first report of the cancellarid from Cocos Island. A single live adult was buried in sand and rubble and exposed by extensive fanning. It was taken by Douglas von Kriegelstein from 20 m off the east side of Isla Manuelita, Bahía Chatham. The specimen is currently in the von Kriegelstein collection.

It is interesting that no evidence of this species had been seen previously despite the extensive collecting, during both day and night, at this locality during successive expeditions.

ADDITIONAL RECORD: With SCUBA

A single dead specimen of *Cymatium aquatile* (Reeve, 1844) was also collected under rubble in 20 m, off Isla Manuelita. This is the second record of this Indo-Pacific species from Cocos Island. Its distributional record has been obscured by a close affiliation with *Cymatium pileare* (Linnaeus, 1758), and the only previous report of *C. aquatile* from Cocos Island was as *C. pileare* (see Emerson & Old, 1964). That shell was a large, broken beachworn specimen subsequently re-identified as *C. aquatile* by Beu and Kay (1988) during their revision of the *C. pileare* complex.

Earlier published reports (Keen, 1971) also attributed to *C. pileare* the more common Cocos Island form, shown by Beu and Kay (1988) to be *C. macrodon* (Valenciennes, 1832), which has also been treated alternatively as a subspecies of *C. pileare* (see Emerson, 1991). While this record reaffirms the presence of two species of the *C. pileare* complex at Cocos Island, there is no confirmed record of *C. pileare* (s.s.) being present.

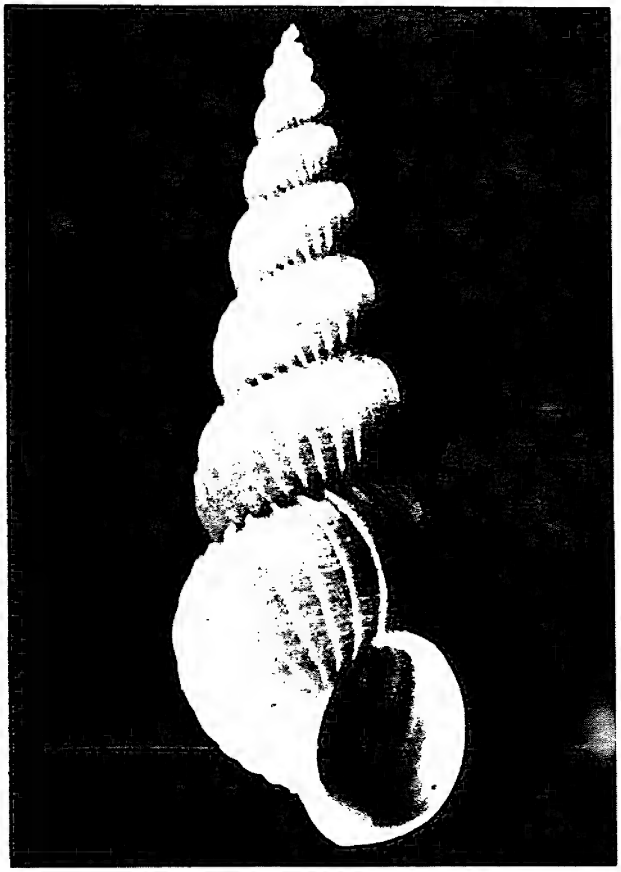


Figure 8. *Epitonium indistinctum* (Sowerby, 1844). Adult, 12.70 mm, SBMNH #55230.

NEW RECORDS: By dredge

Distorsio jenniernestae Emerson & Piech, 1992

A juvenile and sub-adult specimen were dredged live from 95-110 m on coarse gravel and rubble, off Punta Mary, west Cocos Island. The sub-adult specimen had begun to develop the notch on the outer lip that is characteristic of this new taxon and separates it from the other Panamic *Distorsio* (Figure 9).

Specimens of *Distorsio* have only rarely been collected from Cocos Island with no definitive records being reported in the literature. Specimens attributed to *Distorsio constricta* (Broderip, 1833), which might be present in older Cocos Island collections, may in fact prove to be *D. jenniernestae* upon further examination.

ADDITIONAL RECORDS: By dredge

Several species were dredged during the 1992 expedition which, while previously reported from Cocos Island, provided notable additional information.

Previous to 1989, *Haliotis roberti* McLean, 1970 had only been known from the type series, collected by the **Velero III** in 1938. In 1989, Donald Shasky reported the discovery of six specimens adhering to coralline algae in debris collected by tangle net at 80-90 m (Shasky, 1989). Additional specimens were collected by the same method in February 1991, and up to that time all specimens collected ranged in size from 6-20 mm, with the one exception being a larger individual (24.5 mm) found on a small rock.

During the 1992 expedition, *H. roberti* were acquired by net, by SCUBA at 30 m, and by dredging in 100 m and have now been shown to be quite common at that depth. The two largest specimens yet collected were dredged off the east coast of Cocos Island. One was a live 27.7 mm specimen which came up on a rock, while the second was a partial fragment with an estimated length of 34.95 mm (Figure 10), almost twice the diameter of the holotype.

Two other notable species dredged at the same locality were *Cancellaria centrota* Dall, 1896 and two *Morum veleroae* Emerson, 1968. Although Cocos Island is the type locality for both of these taxa, this was the first live *C. centrota* collected during the present series of expeditions (Figure 11). Collection of the *Morum* was the first of a series of specimens to be taken during April 1992, offering an opportunity to study both the shell and animal. The results of this study will be reported in a forthcoming issue of **The Festivus**.

Thanks to W.K. Emerson for reviewing the manuscript.

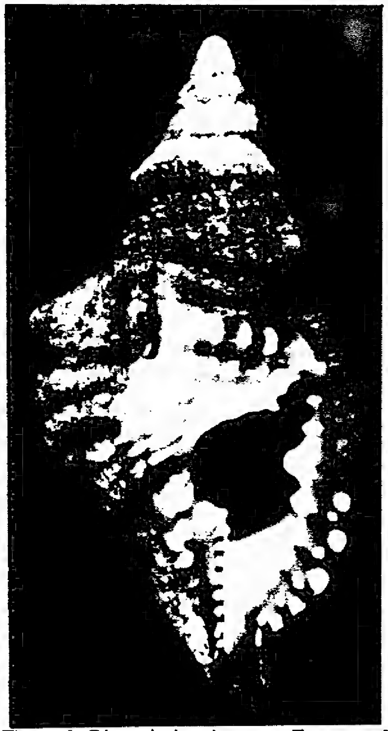


Figure 9. *Distorsio jenniernestae* Emerson & Piech, 1992. Sub-adult, 35.02 mm, SBMNH #55231.

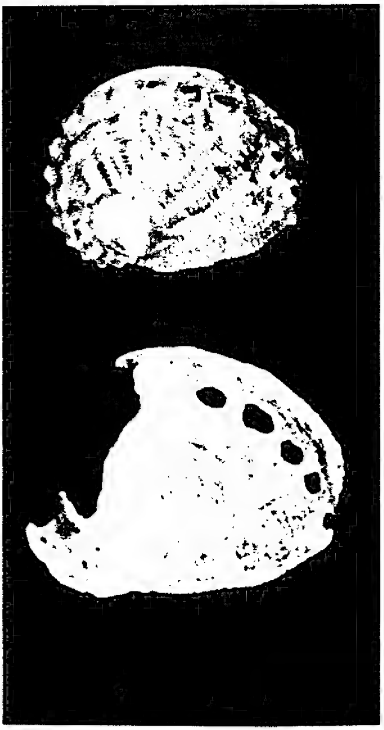


Figure 10. *Haliotis roberti* McLean, 1970. Largest specimens yet collected, (top) live adult, 27.7 mm, (bottom) fragment, estimated length 34.95 mm, SBMNH #55232.

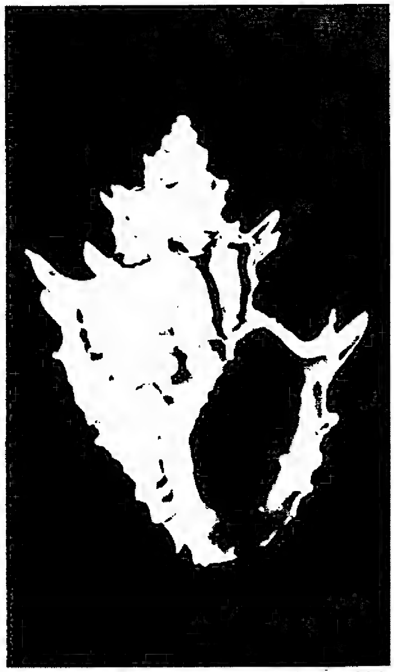


Figure 11. *Cancellaria centrota* Dall, 1896. First live specimen collected, 31.11 mm, SBMNH #55233.

LITERATURE CITED

BEU A.G. & E.A. KAY
1988. Taxonomy of gastropods of the families Ranellidae (=Cymatiidae) and Bursidae. Part IV. The *Cymatium pileare* complex. Journal of the Royal Society of New Zealand. 18(2):185-223.

DALL, W.H.
1908. Reports on the dredging operations of the west coast of Central America to the Galápagos, to the west coast of Mexico, and in the Gulf of California...XIV. The Mollusca and Brachiopoda. Bulletin of the Museum of Comparative Zoology, Harvard. 43(6):205-487.

DUSHANE, H.
1974. The Panamic-Galapagan Epitoniidae. The Veliger 16(Supplement):1-84.

EMERSON, W.K.
1991. First records for *Cymatium mundum* (Gould) in the eastern Pacific Ocean, with comments on the zoogeography of the tropical trans-Pacific tonnacean and non-tonnacean prosobranch gastropods with Indo-Pacific faunal affinities in west American waters. The Nautilus 105(2):62-80.

EMERSON, W.K. & W.E. OLD .
1962. Results of the Puritan-American Museum of Natural History expedition to western Mexico. 19. The Recent mollusks: Gastropoda, Strombacea, Tonnacea, and Cymatiacea. American Museum Novitates 2153:1-38.

EMERSON, W.K. & B.J. PIECH
1992. Remarks on *Distorsio constricta* (Broderip, 1838) and related species in the eastern Pacific Ocean, with the description of a new species (Gastropoda: Personidae). The Veliger 35(2):105-116.

FAIR, R.H.
1976. The Murex Book: an Illustrated Catalogue of the Recent Muricidae (Muricinae, Muricopsinae, Ocenebrinae). Privately published. 138 pp.

HERTZ, C.M. & A. D'ATTILIO
1985. *Murexiella diomedaea* (Dall, 1908) from the Gulf of California. The Festivus 17(9):90-94.

JUNG, P.
1989. Revision of the *Strombina* - Group (Gastropoda: Columbellidae), fossil and living. Memoires Suisses de Paleontologie III:1-228.

KEEN, A.M.
1971. Sea Shells of Tropical West America: Marine Mollusks from Baja California to Peru. Stanford University Press. 1064+ pp.

RADWIN, G.E. & A. D'ATTILIO
1976. Murex Shells of the World. An illustrated guide to the Muricidae. Stanford University Press. 284 pp.

SHASKY, D.R.
1989. My last seven years - at Cocos Island. The Festivus 21(8):72-75.

VOKES, E.H.
1970. The west American species of *Murexiella* (Gastropoda: Muricidae) including two new species. The Veliger 12(3):325-329.

(Reprinted from The Festivus, Vol. 24 (8), August 1992)

WONDERS OF JAMAICA BAY - in celebration of the 20th anniversary of Gateway National Recreation areas, the American Museum of Natural History and the National Park Service present a two day program. On Saturday, September 19, 1992 an all day conference will be held in the Kaufmann Theater at the Museum. Illustrated slide lectures will cover such topics as geology, animals, pollution, proposed alterations. On Sunday, September 20, an all day field trip will take place at Jamaica Bay. Several locations will be highlighted on the tour, and a special tour of the New York Aquarium will complete the program. Space is limited and price is variable depending on AMNH membership. Call (212) 769-5750 for information.

There are a number of additional trips that might be of interest to NYSC members. These include boat trips around Manhattan, bus trips around Staten Island, boat trips up the Hudson River to West Point, and others. Call the above number. ws

NEW YORK SHELL CLUB INC.

FOUNDED JAN. 1949

President

AL SCARPETTI
283 W. 11th St.
New York, NY 10014
212-929-7490

Vice President

LAWRENCE POTTER
109-14 Ascan Ave. #5J
Forest Hills, NY 11375
718-793-4090

Secretary

MILTON WERNER
70 Richmond St.
Brooklyn, NY 11208
718-277-2076

Treasurer - Membership

Theta Lourbacos
66 W. 94th St., #20C
New York, NY 10025
212-866-1298

Historian

Nick Katsaras
27 N. Dean St.
Englewood, NJ 07631

Directors: FRED CANNON, WALTER SAGE, ALLEN AIGEN, EDWARD COWLES

Editor: DOROTHY RAEIHLE, 211 Milligan Rd., West Babylon, NY 11704

These NOTES are issued four times annually and are distributed by mail to all members of NEW YORK SHELL CLUB. Items and articles for publication in the NOTES should be sent to the Editor.

A limited number of back issues of the NOTES are available, $1.50 postpaid per copy.

Dues for all members are due and payable for the following year beginning each September, as follows; full membership $9.00 per year, family membership $11.00 per year, corresponding membership $7.00 per year in the United States; overseas membership $9.00 per year paid in U.S. currency.

The Treasurer-Membership Chairman should be notified promptly of any change of address.

NEW YORK
SHELL CLUB
INC.

FOUNDED JAN. 1949

SCHEDULE OF MEETINGS - 1992 - 1993

PLEASE NOTE: There are differences in date, day and time for our meetings from month to month (unlike previous years.) Consult the current edition of the NOTES for confirmation of date, day and time of each meeting.

DAY	DATE	TIME
SEPTEMBER	MEETING CANCELLED	
Sunday	October 11, 1992	2 P.M.
Sunday	November 1, 1992	3 P.M.
Sunday	December 6, 1992	2 P.M.
Sunday	January 3, 1993	2 P.M.
Sunday	February 14, 1993	2 P.M.
Sunday	March 14, 1993	2 P.M.
Sunday	April 4, 1993	2 P.M.
Sunday	May 9, 1993	Social/Auction
Sunday	June 13, 1993	2 P.M.

Meetings are held at the American Museum of Natural History, Room 319, Central Park West at 79th Street, New York City, except our Social/Auction. On our meeting days, you may gain admission to the Museum without paying a fee by presenting your New York Shell Club membership card.

The NEW YORK SHELL CLUB meets on the Second Sunday of each month, September to June, in Room 319 of the American Museum of Natural History, New York City (unless otherwise advised). NOTE that changes have been made in the schedule of meetings for the 1992-1993 season, and plan accordingly. Please present your membership card from NYSC for admission to AMNH on meeting dates.

PROGRAM SCHEDULE

SUNDAY, December 6, 1992 at 2:00 p.m. - Sue Hobbs and Phil Dietz of Cape May, New Jersey are scheduled to present a slide program entitled "Shelling in Pacific Panama".

SUNDAY, January 3, 1993 at 2:00 p.m. - Mel Springer, NYSC member will share with us his recent trip to the Sea of Cortez, Mexico

SUNDAY, February 14, 1993 at 2:00 p.m. - At present we are in need of a speaker for this meeting and are open to suggestions.

SUNDAY, March 14, 1993 at 2:00 p.m. - Rich Kelly of the Long Island Shell Club will present "Cold water shelling on Newfoundland".

CONTENTS

PAGE
Highlights of Recent Meetings — Milton Werner — 2-5
IN MEMORIAM - Hugh Stix, Phyllis Moran — 5
The Cowry N.S. - Announcement and Call for Papers — 5
Collecting Ice Age Shells in Florida — Allen Aigen — 6, 7
Book Reviews: Antarctic Mollusca, with special reference to the fauna of the Ross Sea by R. K. Dell; Shells of the Northern Hemisphere by R. Tucker Abbott; New and little-known "skeneiform gastropods... by Anders Waren; World Seashells of rarity and Beauty... by Matsukuma, Okutani and Habe; Bivalves of Australia, Volume 1 by Lamprell and Whitehead — 8-10
1993 Winter and Spring Shell Show and Events — Donald Dan — 10, 11
Drama In A Tide Pool — Doug O'Harra — 12-16
Snails Get Shelter After Hurricane — 17
King Phillip Came Over For Good Spaghetti — Alan Gettleman — 17, 18
The Paleontological Research Institution — 19
Mussel Bears: A Coming Of Age — J. Herbert Waite — 20-22

ANNOUNCEMENT: We are planning to meet for lunch at the American Museum Restaurant prior to our December 6 meeting. We invite you all to join with us for this occasion. We must make reservations for our party, so those intending to participate MUST call President Al Scarpetti (212) 929-7430 no later than December 1.

ANNOUNCEMENT 2: As noted elsewhere in this issue, the annual NYSC auction and social is scheduled for our May 9 meeting. We are raedy to accept donations at this time, so please bring your contribution to a club meeting or send them to Sol Weiss, 2562 Ramona Street, East Meadow, NY 11554 as soon as possible. We will prepare the list of items after the March 14 meeting, so we must have your items by that date if you want them included on the list. We have received a selection of shell books from the collection of co-founder Dr. Walter H. Jacobs. These books will be used for the auction and for door prizes at coming meetings.

HIGHLIGHTS OF RECENT MEETINGS

May 10, 1992: Treasurer Theta Lourbacos reported a net income from the April auction meeting of $1,514.56. Thanks were extended to all who had helped make this a most enjoyable and financially succesful function.

In the absence of President Al Scarpetti, Vice President Irv Hoppenwasser noted that scheduled speakers for the June meeting, Dottie and Bob Janowsky, informed us that they had learned of another commitment that would prevent them from joining us in June. Their appearance will be rescheduled. Carl Ehrlich agreed to prepare a program for the June meeting.

The door prizes were Conus augur, won by Nick Katsaras; Turbinella pyrum, won by Milton Werner; and Strombus raninus, won by Harvey Frajlich.

The program for the day was a slide show with recorded narration, all the work of Doug von Kriegelstein, a former New Yorker now living in California. We had enjoyed a similar presentation, done in the same manner by Doug, at our May 1991 meeting. His subject thenwas a collecting trip to Cocos Island, Costa Rica. This time the destination was the northern end of the Gulf of California, in and near San Felipe, Baja California, Mexico. Among the scene-setting views were one of North and Central America taken from space. Others were local scenes and a map showing his three collecting areas. The first was Playa Grande, north of San Felipe. Here he found the collecting richly rewarding during receding tides at dawn. Trails in the sand led to both sand dollars and gastropods. His other shelling locations were Campo el Pescador and the vicinity of San Felipe. The variety of species he came back with was in the dozens, and he included fine close-up photos of many of the more notable ones.

June 14, 1992: The minutes of the May meeting were read and accepted. The treasurer's report, showing a balance of $2,008.83, was read and accepted. Theta also reported on income and expenses for the fiscal year just ended.

President Al Scarpetti introduced new member Peter Ham, and extended thanks to Walter Sage for his considerable, and well-done, work on the production of the New York Shell Club Notes.

For the annual election of Club officers, the Nominating Committee presented the following slate: President, Al Scarpetti; Vice President, Larry Potter; Treasurer and Corresponding Secretary, Theta Lourbacos; Recording Secretary, Milton Werner; Historian, Nick Katsaras; Directors, Allen Aigen, Fred Cannon, Edward Cowles and Walter Sage. There being no nominations from the floor, the entire slate was swept into office by unanimous vote.

Al then presented a program idea submitted by Henry Gordon, who feels that members would find interest and enlightenment in seeing photograps and hearing descriptions of other members' collections and modes of display and storage of specimens. It was quickly decided that the idea merits consideration.

Treasurer Theta Lourbacos recommended that annual dues be raised so as to keep pace with rising costs, particularly in producing and mailing our Notes. The figures she suggested, already approved by the Board, were: regular membership, $9; family membership, $11; corresponding membership, $7; overseas membership, $9. It was moved that the recommendation be brought to a vote, and in a show of hands the ayes had it. The increase would go into effect in September 1992.

The door prizes were Bursa crumena, won by Nancy Corbin; Galeoocorys leucodoma, won by Steve Meurer; and Strombus sinuatus, won by Henry Gordon. Lee Corbin put on display a copy of the 1991 annual report of the Scripps Institue of Oceanography.

A suggestion was made that another field trip be organized. Winterthur Museum in Delaware was mentioned as a possibility, and the idea will be considered.

Members were invited to gather at the home of Carl and Denise Ehrlich on Sunday, August 9, 4 to 6 p.m., to see their collection. It was noted that the Club had Tillie Weingartner's bound volumes of Shell Notes, and after discussion it was voted to donate them to the future Sanibel Shell Museum.

The speakers were Carl and Denise Ehrlich, whose subject was shelling in the Solomon Islands. They have made three collecting trips to the Solomons, starting five years ago, and were only days away from taking off for their fourth visit. Carl led off on a presentation that was unusual in not being accompanied with slides. This lack was more than made up by the many color prints that were on display, as well as a large selection of gem specimens also on display. Carl offered observations and comments on the island group and the resort on Gizo where they stayed. Carl noted that this remote area is little visited, and that this is a secondary reason why the shelling is excellent. They dived and snorkeled every day for eight or nine days, and had brought with them only a very small representation of what they had collected over the years - dozens of magnificent specimens. The haul included six Conus gloriamaris! Many of the species were found in, and living on, war wrecks. The collecting areas included a few nearby islands, whose chiefs levied charges, a typical one being $1.50.

Guadalcanal was a major shelling destination, and here they looked up Brian Bailey, a legendary sheller. His guidance put them onto many major finds, and got them safely in and out of a number of those productive wrecks.

Carl said that he seems able to find shells by the ton, but it's Denise who can come up with the outstanding beauties and rarities. She, without claiming any superior powers, rounded out the presentation by serving as "color commentator". One of the incidents with which she fleshed out the story was the time she accidentally stuck her arm into a huge Tridacna. It didn't trap her - or even try to. On the coming return trip, her comments may be augmented by the camcorder they plan to take along.

August 9, 1992: Responding to an invitation by Carl and Denise Ehrlich, about a dozen members dropped in at their handsome Manhattan apartment on this Sunday afternoon. The Ehrlichs' energetic shelling, with the emphasis on their repeat trips to the Solomon Islands, has amassed a collection that is outstanding in both size and beauty, and this was an opportunity for fellow afficionados to view a truly eye-popping array. The super-stunners are displayed in built-in, illuminated glass-fronted cabinets, and the rest - also worthy of display - cram the multitude of drawers underneath. When the fervor subsided to the point that the visitors could begin to think about, and dig into, the refreshments thoughtfully provided, the hosts unveiled a delightful surprise. On a table, Carl had laid out several dozen specimens, that, given the richness of the collection they came from, he considered redundant. So the visitors were asked to reduce the surplus by picking and taking. This somewhat giddy procedure was kept from getting out of hand by the drawing of numbers to set up a rotation. The drooling participants did about ten rotations before the trove was exhausted. As if a hugely enjoyable afternoon need a sock finish!

September 12, 1992: Though the regularly scheduled meeting had to be cancelled, it was suspected that Nick Katsaras, who had never missed a meeting since joining NYSC in 1949, would not want to break this unsurpassed record, would come prepared to see shells. Not wanting to disappoint such a worthy member, Walter Sage met Nick at the appointed hour, and the two spent nearly four hours looking at recent donations to the AMNH research collection of Recent Mollusca. Nick, who has certainly seen many outstanding specimens in his years as a collector, was heard to comment repeatedly that he had never seen such a wonderful shell. The "meeting that wasn't" ended at about 6 p.m. - we had a GREAT time!

October 11, 1992: Harvey Frajlich passed around prints of photos taken at the Ehrlich apartment, during the gathering there on August 9. Walter Sage related the events of September 12, which would have been a meeting date if the Museum had had a meeting room available for us to meet in. He went to the museum so as to be helpful in case anyone managed to make it. Nick Katsaras, who has attended all meetings, cancelled as well as scheduled, since the second, duly appeared, and he and Walter went up to the fifth floor and looked at shells until nearly 6 p.m. Theta Lourbacos noted that Room 319 is the only one of four meeting rooms now available, the others being used for storage during the renovation of the entire fourth floor, a project scheduled for full completion in 1996!

Two new books were on display: "The Encyclopedia of Seashells," by Gary Rosenberg, and "Volutes," by Poppe and Goto. Nick mentioned a recent PBS documentary on the natural history of Russia, which described Lake Baikal, five miles deep, and a 300-mile-wide forest that stretches for 300 miles.

Vice President Larry Potter chaired the meeting in the unavoidable absence of President Al Scarpetti. Larry commented briefly on NYSC co-founder Dr. Walter Jacobs, Mrs. Waverley Harmon, and Hugh Stix, all of whom died recently.

The door prizes were Voluta musica, won by Allen Aigen; Volva volva, won by Carl Ehrlich; and Hexaplex brassica, won by Milton Werner.

The speaker was Dr. gary Rosenberg, of the Philadelphia Academy of Natural Sciences. His subject was the family Ovulidae, which includes such familiar genera as Ovula, Calpurnus, Cyphoma, Simnia and Volva. Opinions on the number of valid genera vary, so that between 20 and 40 are recognized. The number of species is considered to be between 160 and 170. Gary noted that there is a wide range of variation within species of the family. For example, some genera are camouflaged by their shapes, colors and patterns, while others are highly conspicuous. As food for predators, some are poisonous. Many species have received little study to date. Among the slides that Gary showed were several of living ovulids that he can't match with their shells, although he has been a student of the family for 12 years.

Carl Ehrlich showed two slides he had received from Brian Bailey, Guadalcanal resident and expert sheller. Brian thinks that the cone shell pictured may represent a new species, and forwarded the slides for critical analysis. (The slides have been sent to cone specialist Dieter Roeckel in Germany, and Dieter plans to include them in an appendix to his forthcoming book on Conidae, which appendix will be devoted to species do far defying identification).

November 1, 1992: This 410th meeting was complicated by the unexpected unavailability of Room 319 of the American Museum of Natural History. Walter Sage saved the day by finding space in the Department of Invertebrates that could accomodate 13 people and a projector and screen. It is assumed that all those who planned to attend were eventually tracked down and directed to the fifth-floor hideaway.

President Al Scarpetti opened the meeting at 3:25 p.m., and because of the cramped situation suggested that there be no business meeting. With no strenuous objection forthcoming, the meeting was turned over to speaker Jon Greenlaw.

Jon described, with the aid of slides and wife Vi, a week of shelling in May, 1992, on Utila island, Honduras, which is in the Bay Islands group in the Gulf of Honduras. The trip was tailored for the Greenlaws and three others by a Ft. Myers, Florida tour director. A 10-minute charter flight took the group from La Ceiba, Honduras, to Utila and its dirt runway. The "terminal building" bears a strong resemblance to a small shack - or shed. Baggage transportation into "town" was handled by a wheelbarrow! The destination was the Hotel Trudy, six rooms. Like the other facilities, it proved to be adequate and agreeable.

Utila is mostly flat, the "big" exception being Pumpkin Hill, 300 feet. Its people are mainly of English and Scottish descent.

The group snorkeled, picked over intertidal areas and used SCUBA gear. Among the prizes collected and pictured, snorkeling yielded tellins, strombs, and members of the Cardiidae, Cassidae and Cyphoma.

Tide pools and the undersides of rocks added littorinids, fissurellids, Cypraea, muricids and chitons.

All of the SCUBA diving was done at night, from a dugout dory with an outboard. The catch included ceriths, turrids, Colubraria, miters, Conus cedonulli, C. harlandi and C. sunderlandi, Polystira, muricids, Lopha, Calliostoma, naticids, ranellids, Latirus, Glycymeris, Chione, turbos, Turbonilla, volutes, Spondylus and chitons. The Greenlaws now want to see what daytime diving would provide.

Flyers for the November 7-8 Philadelphia Shell Show were distributed.

IN MEMORIAM - Hugh Stix; Phyllis Moran

Noted shell enthusiast and author Hugh Sylvan Stix died July 21 in New York. The 85 year old collector and his wife, Marguerite, who died in 1975, and R. Tucker Abbott, published the classic 1969 book, "The Shell:Five Hundred Million Years of Inspired Design."

Stix founded, owned and managed the Artists Gallery on East 57th Street here in Manhattan for many years. His wife was a painter, sculptor and designer of a spectacular array of shell jewelry.

NYSC member Phyllis Moran, a resident of Harrison, New York, Westchester County, passed away about October 1. Mrs. Moran, age 72, had been a member for the past several years, but had not been able to attend meetings for some time.

The Cowry N.S. - Announcement and call for papers

The proposal to revive The Cowry magazine has been favorably received, and it thus appears justified to start planning its reapparance. The Cowry N.S. (New Series) will commence in 1993 but, because of concerns over a sufficient number of suitable contributions, will be published in irregular intervals and issues will not be payable on a four-issue basis, however they will not necessarily amount to annual subscriptions. The publication will be in the A4 format (ca. 21 x 28 cm). A trade/buy/sell section will be available in the form of line advertisements (no display ads permitted) at U.S. $2.50 per line (ca. 16 words) for the first run and one-half that for reruns. Announcements will be printed free of charge, but will be subject to suitability evaluation and space restrictions. The cost of subscription has been set at U.S. $28 for individuals and U.S. $56 for libraries, which is not much considering that this will be a highly specialized periodical (small press run, high unit cost) that will accept color illustrations.

Address correspondence to J. Zidek, P. O. Box 95, Socorro, NM 87801, USA. Send manuscripts to J. Zidek, NM Bureau of Mines, C/S, Socorro, NM 87801, USA.

(Paleontological Society newsletter)

(Those wishing to subscribe are urged to write to the above address and learn just when this publication can be expected to commence. It may not be advisable to send money in advance, and sample copies of the first issue would be a sensible precaution).

All NYSC members are here advised that our annual auction/social is scheduled for the May 9 meeting (not April as in past years). We are now accepting your donations of shells, shell books and shell-related items, and urge you to get your contribution to either Walter Sage or Sol Weiss, 2562 Ramona Street, East Meadow, NY 11554 in time to be included in the list to be prepared in March.

COLLECTING ICE AGE SHELLS IN FLORIDA

by Allen Aigen

For the last two winters I've had the opportunity to collect sea shells near the shore of Lake Okeechobee in south-central Florida. These shells are, to the casual observer, just the same as those now on the sea shore, just less colorful. But a careful comparison shows mostly extinct species, many of which are very similar to living species in Florida, but others which most closely resemble Panamic province species. Some of the living compatriots are also restricted to other areas far from Florida.

Florida has been under the ocean for much of its geological history, and different areas in Florida preserve evidence of this as fossils buried in the ground. Because Florida is so flat, there are few natural exposures. The APAC quarry near Sarasota is a famous collecting locality, but is only open to collectors on a limited basis. Canal dredging, which drained and shrank the Everglades for agriculture and housing, dug up sand, mud and shell, from the early Ice Age (Pleistocene Era, about 2 million years ago) and dumped it as levees on the sides of the canals. I've collected diverse shells of the Pleistocene Caloosahatchee Formation from the levee of the Miami Canal at about 7 and 10 miles south of Lake Harbor, Florida.

The Caloosahatchee molluscan fauna has been well documented by A. A. Olsson and A. Harbison in their 1953 "Pliocene Mollusca of Southern Florida" (reprinted in 1990 due to collector demand). For a casual collector this book will suffice. If, however, you get hooked on collecting fossils, and want the latest information available, Edward J. Petuch of Florida Atlantic University, Boca Raton, is the person to contact. You should first obtain his 1988 book "Neogene History of Tropical American Molluscs." Although all his books need a good editor, and most workers regard him as a splitter, Petuch has done much to find and document molluscs (mainly gastropods, often collectible groups) and place them into a historical, geographical context (paleobiogeography).

The shells I collect are generally just sitting exposed on the sides of the levee. (The top is used as a road by the sugar cane farmers on whose land the deposits are situated.) The shells are generally whitish, but sometimes are partly green from the algae living on the damp levee ground. I simply park on the levee where I see a patch of white, exposed soil and slowly walk along as I would on a beach, picking up every well preserved snail shell I spot. Typically, with only a minimum of work and luck, one can find cones (more than 6 extinct species), turritellas (4 species), whelks (5), moon snails (3), nutmegs (4), terebrids (3, but none extinct), figs (1), strombs (1), crown conchs (1), fasciolariids (3), miters (1 nearly extinct family), vases (1), turbinellas (2), olives (I'm still working on 'em), turbans, ceriths, crepidulas, a volute and a cowry. When your bag gets heavy and you slow down, you will see a wealth of smaller specimens, including diverse muricids, marginellas, nassariids, turrids, calyptraeids, limpets and dove shells, among others. If you really like a high diversity, you can collect microspecies. I wash the mud out of large specimens and sort it through a series of strainers. Fragile shells are not crushed and the variety is great.

But don't expect real gem specimens from the levee. Larger shells were often killed by shell-cracking crabs or bored by sponges and algae before being buried and preserved in the mud. Shells may also be broken in the dredging/dumping process or after exposure. All the shells will be near white or tan in color.

Many shells, however, do show their original colors, though faintly (such as brown squares on *Scaphella floridana*, or spots on *Conus spuroides* - both closely related to living species). Almost all can reveal their original color patterns under ultraviolet light (such as used by mineral collectors.) The shells must first be bleached white, either by sun exposure or by household bleach. Under the UV the color pattern is reversed - darker colors glow brighter. The pattern revealed helps in identification of species.

Although normally the only bivalves I collect are pectens, I do have a good assortment of bivalves from the Caloosahatchee. I also have many species of gastropods which are available for trade.

If you enjoy collecting your own shells, but have been discouraged by barren beaches, the stink of dead snails, stinging jellyfish, state fees and regulations, overcollecting of live animals and other common problems, I know just the place for you. Come on down to the Ice Age in sunny south-central Florida and start learning about fossil mollusks and evolution at first hand.

(We thank Allen for this contribution and urge you all to help out this poor, deserving typist by sending an article to either the editor, Dorothy Raeihle, or the typist, Walter Sage. I assure you that we will welcome your article!)

WS

We take this opportunity of sharing with you this wonderful photo of several of the past presidents of the New York Shell Club. This picture was taken at the 25th anniversary celebration in January, 1974. Pictured are, from left to right: Ed Cowles, Bill Old, Walter Jacobs, Harold Feinberg (partly hidden), Dorothy Raeihle, Mart Hulswit, Karl Jacobson, Tony D'Attilio, Mike Werner, George Raeihle.

Note: If you become a more active NYSC member and help fill the shoes of these historic figures, you'll be able to have your photo taken at the ceremony planned for the 50th anniversary of the club that will take place in January, 1999.

Please join us in congratulating Harold Feinberg, NYSC honorary member and past president, on the occasion of his retirement from the American Museum of Natural History, where he had served for 25 years as Senior Scientific Assistant.

BOOK REVIEWS:

Antarctic Mollusca, with special reference to the fauna of the Ross Sea by R. K. Dell. Bulletin 27, The Royal Society of New Zealand. 1990. 311 pp., 482 figs., 21 tables, 6 3/4" x 9 3/4". paper. $65.00.

The author, one of New Zealand's most respected malacologists, began compiling data on the mollusks of the Ross Sea in 1957. Over the ensuing decades, he studied numerous collections from a variety of expeditions and visited several museums to study those holdings of Antarctic Mollusca. The present volume is the result of those many years of research, and it is expected that further publications will cover in the same detail mollusks from other Antarctic areas.

Mollusks covered in this monograph include bivalves, chitons, scaphopods and gastropods. Systematic discussion of species occupies nearly 260 pages, with an analysis of distributional patterns, a list of expedition stations, detailed bibliography and index to scientific names completing the volume. Treatment of each named taxon includes genus and species (or subspecies) name, author and date of description, references, list of material examined, distribution, diagnostic remarks, and figure citations (in most cases named taxa are figured). Two new species of bivalves and one new genus, 43 new species, two new subspecies and one replacement name for gastropods are introduced in this bulletin. These new taxa descriptions and illustrations, coupled with the very detailed and exact treatment of this otherwise poorly known mollusk fauna, make this book a most important reference and a necessity for those interested in the mollusks of the Antarctic and nearby areas of the southern hemisphere. The price, though somewhat high by "popular book" standards, is well within reason for a book af this many pages and such scientific value. ws

---

Seashells of the Northern Hemisphere by R. Tucker Abbott. 1991. Gallery Books, New York. 191 pp., many color photos. 10" x 13", hard cover. $24.95.

In early 1991 I reviewed the abbreviated "American" edition of this worthwhile guide to the most commonly available marine mollusks of the northern hemisphere. I return now to acquaint you with the larger edition, which contains some 155 (by my count) additional species, many of these not included in other popular books. The photos, as well as the type size, are larger in this version, and the reader will find it easier to identify specimens using the larger book. The quality of the photos is uniformly excellent, and only one species (Epitonium indianorum) has been illustrated incorrectly as a sinistral specimen.

In addition to the photos and accompanying text, which cover marine gastropods, pulmonate snails, tusk shells, chitons, and bivalves from three regions (western North America from Arctic seas to northern California, the western Atlantic from Newfoundland to Cape Cod, and the eastern Atlantic from the British Isles to northern Portugal), the author has included 14 pages of introductory material covering such topics as geographical distribution, molluscan ecology, molluscan marine provinces, classification and scientific names, feeding and reproduction, and how to collect shells. For each included species, genus and species name with author and date of description, common name, size, locality, and a few sentences of description have been provided. A glossary of terms, concise bibliography, and an index by common name complete this volume. In one of the European publications I noticed a few corrections to the species names, but this does not materially detract from the usefulness of this book. I would encourage all collectors to include this inexpensive book in their libraries. ws

---

New and little known "skeneiform" gastropods from the Mediterranean Sea and the adjacent Atlantic Ocean by Anders Waren. 1992. Bollettino Malacologico 27(10-12):149-248, 47 figures, paper. no price indicated.

This 100-page booklet covers about 150 named taxa of microgastropods, traditionally included in Cyclostrematidae, Skeneidae and related families, primarily from the Mediterranean amd adjacent Atlantic Ocean. A new family, Xylodisculidae, is here erected, as are the new genera Skeneoides, Akritogyra, Lissomphalia, and nine new species.

Systematic treatment of the families Skeneidae, Trochaclididae and Xylodisculidae is made on the basis of shell, radular and anatomical characters. Species citations include names of genera and species, author and date of description, diagnosis and remarks. Crisp, enlarged, black and white photos of radulae and shells enhance this valuable contribution. Comments on various skeneimorph taxa, a summary of taxonomic changes introduced in this paper and a detailed reference list complete the booklet. We are happy to recommend this latest addition to the author's many works on the tiny (often less than 2 mm) gastropod mollusks. We look forward to his future contributions on minute mollusks.

ws

World Seashells of Rarity and Beauty - revised and enlarged edition by Akihiko Matsukuma, Takashi Okutani and Tadashige Habe. 1991. National Science Museum, Tokyo. 206 pp., 158 color plates. 8 1/2" x 12". hard cover. $55.00.

The Kawamura Collection, largest private shell collection in Japan, was donated to the National Science Museum, Tokyo, in 1983. To commemorate this donation, a special exhibition was organized and the first edition of this book, which included 48 plates featuring 407 of Kawamura's rare and beautiful specimens, was published. Mr. Kawamura, 92 years of age at the time of publication, has continued to add specimens to his donated collection. This augmented collection is shared with the world with publication of this revised and enlarged edition.

This second edition contains 158 exquisite color plates covering nearly 1000 species - 750 gastropods, over 200 bivalves, 16 scaphopods and nine cephalopods. Among the species, subspecies and varieties illustrated are 23 Pleurotomariidae, 33 Strombidae, 91 Muricidae, 89 Buccinidae, 83 Volutidae, 41 Pectinidae and 20 Cardiidae. Worth special mention are the many holotypes and paratypes here figured, many which have never before been pictured in color. Japanese species are especially well represented, including the cold water buccinids. Judging from the quality of the illustrated shells, the Kawamura Collection is one of the world's premier mollusk collections. All of us who are collectors of specimen shells and lovers of the beauties of nature will want to own (indeed, almost need to possess) this truly spectacular volume.

ws

Bivalves of Australia, Volume 1 by Kevin Lamprell and Thora Whitehead. 1992. Crawford House Press, Bathurst, Australia. xiii + 182 pp., 77 color plates. hard cover. $40.00.

Collectors and malacologists alike have long felt a need for a modern pictorial guide to Australian bivalves. Identifying and researching the correct author and date have up to now been a time-consuming, frustrating task. The authors have taken a giant step toward remedying this situation, here presenting us with a wonderful guide to 617 species in 26 of the most colorful and popular families. The concise descriptions and color illustrations will enable easy identification of species included. The careful research which went into the production of this volume can be readily seen by even a casual perusal of the book.

Families here covered are Glycymerididae, Pinnidae, Propeamussiidae, Pectinidae, Placunidae, Limidae, Trigoniidae, Lucinidae, Fimbriidae, Chamidae, Carditidae, Crassatellidae, Cardiidae, Hemidonacidae, Tridacnidae, Mactridae, Mesodesmatidae, Tellinidae, Donacidae, Psammobiidae, Semelidae, Solecurtidae, Trapeziidae, Glossidae, Veneridae and Petricolidae. Species treatment includes genus and species name with author and date of description, length, sculpture, color, periostracum, habitat and distribution. Diagnosis of each family and genus complements species accounts.

A four-page introduction precedes the species accounts, which are followed by a glossary, detailed bibliography and an index to scientific names. From reading through the bibliography, it is apparent that the authors have carefully searched relevant literature in preparing the text. This important contribution is highly recommended - you will do well to purchase this book without delay. We hope that there will soon be a Volume 2, which should cover remaining families of Australian bivalves, such as Arcidae and Ostreidae.

ws

1993 Winter and Spring Shell Shows and Other Events

January 15-17
Greater Miami Shell Show, North Miami, FL
Norris McElya
905 NW 15th Avenue
Miami, FL 33125-3625
(305) 642-1504

January 23-24
Austronaut Trail Shell Show, Melbourne, FL
Jim & Bobbi Cordy
385 Needle Blvd.
Merritt Island, FL 32953
(407) 452-5736

February 5-7
Broward Shell Show, Pompano Beach, FL
Charles Aronson
1300 NW 7th Terrace
Ft. Lauderdale, FL 33311
(305) 764-0768

February 11-13
Ft. Myers Festival of Shells, Ft. Myers, FL
Edie Chippeaux
1308 Biltmore Drive
Ft. Myers, FL 33901
(813) 936-4058

February 13-14
Vemes Recontres Internaionales du Coquillage, Paris, France
Association Francaise de Conchyliologie
1, impasse Guemenee
75004 Paris, France
(1) 40-27-96-72

February 19-21
Sarasota Shell Show, Sarasota, FL
Peggy Williams
P. O. Box 575
Tallevast, FL 34270
(813) 355-2291

February 26-28
Naples Shell Show, Naples, FL
Naples Shell Club
P. O. Box 1991
Naples, FL 33939-1991
Ann V. Szent-Kirallyi
(813) 597-6115

February 26-28
St. Petersburg Shell Show, Treasure Island, FL
Bob & Betty Lipe
440 75th Avenue
St. Petersburg Beach, FL 33706
(813) 360-0586

March 4-7
Sanibel Shell Fair, Sanibel, FL
Georgette Laforet, 1119 Periwinkle Way #176
Sanibel, FL 33957
(813) 472-6290

March 11-13 Marco Island Shell Show X, Marco island, FL
Janet de Lambert
880 Huron Court #301
Marco Island, FL 33937 (813) 394-6843

March 19-21 Treasure Coast Shell Show, Stuart, FL
Linda Zylman Jacaruso
1850 SW Crane Creek Avenue
Palm City, FL 34990 (813) 220-2582

April 2-4 Georgia Shell Show, Atlanta, GA
Horatio Buck
4357 Hardwood Circle
Lilburn, GA 30247 (404) 979-8111

June 19-20 XII Salon International du Coquillage, Lutry, Switzerland
Dr. Ted W. Baer
CH-1602 La Croix, Switzerland (021) 393711 Or 207371

(The above listing was kindly provided by Donald Dan, 2620 Lou Anne Court, West Friendship, MD 21794 - phone (410) 442-1242 or 1942). We hope that those attending one of these shows will give us a report for these NOTES.)

It is not too soon to inform you of the schedules for the AMU and COA Summer meetings. The American Malacological Union annual meeting is scheduled for June 21-25 aboard the Nordic Empress, traveling from Miami, FL to Freeport, Nassau and CocoCay, Bahamas. The meeting agenda will follow the traditional format, with a symposium on patterns of speciation in mollusks, contributed paper sessions, field trips to various islands, and an auction of publications and other items of malacological interest. These arrangements are subject to adequate reservation of space - a refundable deposit of $100.00 must be sent to Holbrook Travel, 3540 NW 13th Street, Gainesville, FL 32609 NO LATER THAN the 15th of December 1992. Additional information may be obtained from Dr. Fred G. Thompson, Florida Museum of Natural History, University of Florida, Gainesville, FL 32611. Phone: (904) 392-1721. Don't delay and miss this rare opportunity.

The annual convention of the Conchologists of America will be held July 11-17 at the Edgewater Resort complex, Panama City Beach, FL. Convention co-chairmen Jim & Linda Brunner, P. O. Box 8188, Southport, FL 32409. Phone (904) 265-5557. A variety of accomodations, including condominium apartments at bargain rates, are available, and a wide range of events, with the focus on field trips and educational slide lectures are planned. Sol Weiss will provide shells for the popular bargain table, and the traditional club sales, auctions, raffle and always popular Dealers Bourse will be featured. Details will be prominently placed in the March 1993 issue of these NOTES. Those who have never attended a COA convention should consider taking part in the 1993 festivities.

From the September 14, 1992 issue of the Association for Systematic Collection's The ASC Washington Initiative comes the report that Senator Max Baucus (D-Mont) has introduced legislation that would require permits for the collection of "scientifically significant" vertebrate fossils on federal lands. All specimens would remain the property of the federal government and could be moved at will by federal officials. ASC opposes the suggested federal ownership and control of specimens. The bill also fails to provide funding for museum maintenance of federally owned specimens. So far, invertebrate fossils have not been included in the proposed legislation, but we will be watching developments as details are provided by ASC. Watch these pages of future NOTES for any developments.

DRAMA IN A TIDE POOL by Doug O'Harra, photography by Bob Hallinen - reprinted from the May 31, 1992 issue of The Anchorage Daily News Magazine

High tide inundates China Poot Bay [Alaska]. For several minutes, most of the beach has vanished. So you wait on the cliff in a rain forest of moss-covered mounds and Sitka spruce that tower overhead like Doric columns. The spongy ground, covered with needles, extends from your feet to the precipice. Below you, waves explode against the cliffs, shooting jets of water skyward like gushers. You hear the slap and suck of the water on stone, the crash of breakers over jumbled boulders. You smell the cold musk of the sea.

From this vantage, you can see all of the lower reach of China Poot Bay, the heart of Kachemak Bay State park, five miles south of the Homer Spit across a deep channel. Through the woods you can catch sight of Peterson Bay. At low tide, the two bays contain some of the most productive tide pools in the region, micro-climates teeming with clams and chitons and snails, sponges and urchins and worms, ravenous sea stars and scuttling crabs. For now, these treasures remain hidden beneath the gray-green surface.

In centuries past, Natives built a camp right here where they could watch the sea for incoming bidarkas. The remnant of a house pit cuts the ground beneath a spruce, and broken shells of China Poot Bay's butter clams and mussels litter the path down to the shore - ancient garbage exposed by erosion.

Like those ancient Natives, you've come to explore the low tide. But with a difference. Where they came to eat, you've come to observe and learn.

It is may 5, a Tuesday, only three days after the new moon aligned with the sun to trigger a series of dramatic spring tides. At 4:28 a.m., the tide peaked. Slowly, slowly, it began to turn. The waves pulled back from cliffs, baring to air the upper beach, the seaweed, the rocky pools of life. The level of the water began to fall almost a vertical inch a minute, exposing the richest intertidal life in Cook Inlet.

By 9 a.m., two hours before the lowest point of the tide, the sea has ebbed to below the first barnacle-covered rocks and the first drippy mats of firecracker kelp, the first beds of blue mussels. At least 10 yards of beach - reflecting a drop in water level of 10 feet - now glistens in the air. The intertidal zones have begun to emerge, providing a glimpse of the world beneath the waves.

Some 27 sixth-graders from Big Lake Elementary School have spread out along the muck and gravel. They congregate in small groups, stooping at this mat of seaweed, peering at the face of those rocks. Accompanying them are 10 parents, one teacher and two volunteers from the Center for Alaskan Coastal Studies, a non-profit educational group that operates a lodge on nearby Peterson Bay and sponsors guided tours of the tide pools.

"Now I want you guys to take a second and put your head next to the barnacles and listen," Big Lake teacher Gary Walker says to a small group clustered by a boulder. The rock's face is festooned with greenish-brown seaweed. In between, the barnacles cling to the rock, sticking out like tiny brown volcanoes in a slimy jungle.

"Really?" exclaims a boy. "No, I just want you to look funny..." The boy squats, head close to the rock, ear almost touching the tips of the acorn barnacles. They crackle. "Oh my gosh," he cries. "DUDE!" "Yeah," Walker says. "They're really doing something."

The water seems to recede faster and faster. The tip of a small rock breaks the surface just offshore. As wavelets lap it, it emerges with barely discernible speed, a sliver at a time.

Mats of firecracker kelp - so named because the air sacks that keep the leaves afloat will snap and crack when stepped on - are steadily exposed. Beds of blue mussels glisten atop the kelp. Offshore, the current accelerates into a full-fledged rapid, waves rising and breaking, slime and strands and fronds swirling and roiling in the current as they sail past. There is a sense of approaching climax.

Over by some slimy rocks, another group of kids squats with Kathy Herrnsteen, a former Anchorage high school teacher who retired to Homer and now volunteers for the center. She points out the shield limpets, striped, conical creatures that graze algae from the surfaces of rocks.

A limpet, she tells them, will travel all over the rock, but always returns to the same location, a place where it has altered the rock's surface to fit lock-step with the unique rim of its shell. When the tide pulls back, exposing the limpet to air, the creature sucks itself tight against the prepared site, sealing itself in a life-sustaining bubble of seawater,

For collectors (the children are encouraged to examine the creatures, take notes, and then replace them where they were found), the lesson is plain. "If you want to get a limpet, you've got to be fast," Herrnsteen tells the kids around her. "If you don't get it right away, it will squish itself against the rock and you won't get it off."

But limpets offer another lesson: Life in the intertidal world must adapt to a climate so harsh that it would kill most vertebrate animals in a single day. Over the course of a tide cycle, these animals must be able to survive dramatic swings in temperature, submersion by salt water, washing by fresh water, exposure to searing air.

Such extremes create what biologists call "zones" - micro-climates marked by the amount of time spent submerged or exposed. They stretch along the beach in bands. Think of the visible change of vegetation on a mountainside, from forest to alpine tundra, as a comparable example.

The zones occur in a continuum, with overlap from one to the next. Farthest up-shore, the "splash zone" is hit by spray and breaking waves, and contains mostly land creatures tolerant of a small amount of water. The "high tide zone" is submerged only one to four hours a day, when the tide peaks. As a result, it contains creatures that can survive long hours in the air. On China Poot Bay, it is home to barnacles, snails and limpets - all animals that can seal themselves tight. The "middle tide zone" lies roughly half the time underwater and half the time in the open air. Here the high-tide creatures are joined by the blue mussels, clams, worms and crabs.

The "low tide zone," exposed only one to four hours a day, contains animals that can only live for a few hours in the open air: Some sea stars, moon snails, purple and green sea urchins, lined chitons, Christmas tree sea anemones. The "sub-tide zone" contains beds rarely or never exposed to air. It is, in effect, a glimpse of the ocean floor brought to the surface by a dramatic low tide. In it live the exotic and the strange: colossal sunflower stars with 24 waving rays, shy octopuses and furtive squids, sinister jellyfish and sea anemones with tentacles that sting.

As the water pulls back further, it exposes a band of gravel below the region of kelp and mussels - perhaps 10 to 15 feet below the high tide line at China Poot Bay. It pulls back even further, exposing beds of red algae and fronds of kelp and squishy green sea lettuce. The children run along the shore, their cries a chorus of amazement as they turn over rocks and squat by pools of water.

Discoveries come unexpectedly. You stoop next to a boulder in the middle tide zone, a place perhaps 15 feet below the surface at high tide. First impression? It's nothing but a pool of muck dotted with specks. A few sprigs of seaweed lay atop, and a snail or two seems caught motionless. The muck smells and looks like cold, dead muskeg.

Then, by degrees, it comes alive. The rock's surface glistens in the breeze, and you see that it has a greenish tint: the teeming slime of algae and plankton. Grazing on that microscopic life are the tiny shield limpets and littorine snails. You notice that what at first seemed like nodules on the rock are really a packet of snail eggs.

Suddenly, the entire pool bursts alive to your perception: yellowish sponges encrusted on the rock, specks darting back and forth, sand fleas crawling out of the goo. What had seemed static only moments before is actually saturated with life. Movement in the muck catches your eye. Tiny cylinders emerge and wave erratically in the air. They are, in fact, scores and scores of worms, three or four per square inch, rising like periscopes. Among them are tiny green sea anemones. Touching one causes it to close like a fist.

Suddenly a jet of water squirts over top, nearly hitting you in the face. At the base of the boulder waves a thick, stubby protuberance. You see another, and another, and then one of these protuberances squirts with a squishy sound. The butter clams have surfaced.

Nearby rests another boulder, with an irregular pool of water beneath it. Chunks of a crab's carapace, a crab's pincer, and fragments of shells lie on the rocks. The debris flags the area as the mouth of an octopus den, though the resident can't be seen. Octopuses - mollusks that lack shells - are the tide pool's most mysterious creatures. They can squeeze themselves into holes that seem far too small. At night, and at high tide, they emerge to forage.

Look here! A sea star! The cry draws a crowd of children to a newly exposed pool. A leather star, mottled and pinkish and smelling of burnt garlic, has been seized and is being handed around. Someone turns over a rock and discovers a brittle star, its five skinny rays - the size of thick boot laces - waving wildly. Red and green Christmas tree anemones rest fat and thick under the water. As the water recedes and exposes them, they collapse into shapeless mounds. Then someone finds a shrimp hiding under a rock. It has a greenish yellow stripe and crawls steadily, antennae flickering.

Walker, squatting at the edge of this pool surrounded by his students, flips over a rock and exposes a menagerie: green anemones, yellow encrusted sponges, brittle stars with whipping rays, periwinkle snails and more. The students stare at the display. "You've got quite a community of little critters under one little rock," Walker says.

Time passes rapidly. Suddenly, the water in the channel goes slack. It's low tide. The ocean has dropped 23 feet from where it was six hours earlier. The children begin leaving the beach, heading back toward the Coastal Studies Center for lunch. But you have discovered a deep pool on the sea floor. The sun is high, the wind calm. You sit. You wait.

The band of firecracker kelp and blue mussels lies high above you now and has dried in the sun. The gravel below it has also dried, and the mats of sea lettuce and fronds of brown kelp below it are still damp. Broken shells litter the shore, including steamer clams with neat, round holes that look as though they had been drilled. Moonsnails attacked those clams at night, cutting the holes and sucking the clams out. In the day, the only visible sign of these silent predators is their egg cases - flat, black rubbery doughnuts that resemble engine gaskets.

Smells: the muskeg-like odor of decaying matter, the bite of salt water. Sounds: the cries and caws of glaucous gulls and crows, the distant drone of a boat engine, the rustle of wind in the spruce on the cliff. But gradually you become aware of fainter sounds rising from your feet: a faint cacophony of squeaks and squirts and squishes. Along the beach, jets of water squirt a foot or two into the air from the muck. The clams are talking.

The pool of water is dense with life. Hundreds of green sea urchins, the size of hamburger buns, cover the floor. Empty shells of butter clams and mussels are scattered among them. Christmas tree anemones, their tentacles open, sit silently. Off to the side, an orange hermit crab, its body inside a snail's shell, scoots through an open mussel shell no larger than a serving spoon. It launches itself off the lip, falling gracefully into a crevice in the craggy floor of the pool. A shrimp flutters past. An anemone twitches.

Out in the center of the pool, in an area cleared on the green urchins, swim two sunflower sea stars the size of pizza tins, one dull green, the other bright orange. It looks startling, like a sunburst.

The green one moves little, its rays waving slowly. But the orange one glides in a slow circle around the perimeter of the other, its rays eloquently waving as it settles in a new spot. The two creatures' rays touch repeatedly as they rest in the pool.

They are the lions of the tide pool, these large stars. On the bottom of their rays are hundreds of tiny, pistonlike tube feet that can grip the ocean floor or pry open clams. The tip of each ray contains a light-sensitive "eye" that enables the star to navigate among boulders and cracks. And they are highly flexible and agile, able to turn themselves over, slip through narrow openings and travel 18 inches a minute - a lightning-quick pounce from a sea-urchin's point of view.

But these stars are preyed upon in turn. Glaucous gulls will eagerly attack them if the ebbing tide leaves them in the open. And in the water, adult king crabs will consume them.

Indeed, a tiny orange king crab, the size of a half-dollar, emerges from the jumble of rocks at the edge of the pool. It meanders toward the sea stars, gradually veering off to the side as it climbs and drops and struggles toward the deeper water. Today the sea stars rule the pool. But in a few years, the king crab could grow large enough to return and consume the lions of its nursery. Unless something else eats it first.

In the end, Walker's sixth-graders recorded a myriad of creatures on their tour of China Poot's low tide. They saw three varieties of barnacle, four sorts of sea anemone, five species of sea star and two kinds of urchin, along with chitons, worms, limpets, sea cucumbers and two crabs - the hermit and baby king.

Making such lists, Walker believes, will open their eyes to what they can see if they slow down and watch. "All of these kids have four-wheelers, all of them have snowmachines," he says. "They're used to ripping and tearing around. And now we're asking them to stop and look where they put their feet. It's just really trying to make them conscious of their environment."

The following morning, the tide drops 21½ feet, exposing Otter Rock at the mouth of Peterson Bay. At high tide, only the top 10 or so breaks the surface, marking a reef. But the lowest tides expose a virtual mountain of sea stars and chitons in a chaotic jumble of ledges and crevices and boulders. Much of the surface is clogged with mats of sea lettuce and firecracker kelp. But the visible pools seem crammed with life: snails, chitons, urchins, sea anemones, sea stars, barnacles.

By 11 a.m., under a cold, pelting rain, children in knee boots and raincoats have scattered over the rocks in search of jumbo lined chitons - segmented mollusks that graze the surface of rocks - and their predators.

A group of children brings Kathy Herrnsteen a leather star. Upon examination, she discovers that a worm lives on the underside of one of the rays. "He's not bothering the starfish at all," she says to the kids. "He's just living there." "Would he eat the worm?" someone asks. "Maybe, if the starfish was really hungry. But he's got bigger and better things to eat."

In a crack no larger than a salad bowl, swarms of tiny hermit crabs scuttle over the pink algae attached to a rock. A five-ray star clings to the same rock next to periwinkle snails and tube worms. Off to one side rest a lined chiton, a sponge, a worm with a red mouth. Specks too small to be identified dart about in frantic chaos.

"Once you learn to identify these things, you can't leave a crack," says Herrnsteen, on her knees next to the little pool. "You spend your whole time at one small rock." Steve Platt, 12, arrives with a tiny blue mussel. He wants to feed it to a large Christmas tree anemone in a nearby pool. But that anemone's "mouth is closed. "Not that one," Herrnsteen says. "He's busy." She points out another large one, its mouth open wide, tentacles dangling in the water. "How about this one. He looks hungry."

Platt reaches into the pool, his fingers brushing the sticky tentacles, then he drops the blue mussel right in the middle. The tentacles droop and then rebound slightly under the minuscule weight of the mussel. For a moment, nothing moves. Then slowly, a tentacle at a time, the mouth of the anemone tightens around the mussel, drawing it down, down, down, finally closing around it. "Ooo, look at that!" Platt cried. "He sucked that sucker right in!"

In a few moments, that anemone will finish digesting the innards of the hapless mussel. It will open its mouth and eject, using one sticky tentacle at a time, the shell, which will then fall into the litter of shells on the floor of the pool. Then the creature will open its tentacles and be ready to join the ceaseless round of predator and prey in the tide pool. "He'll have to wait for things to flow by," Herrnsteen says. Then she pauses, watching Platt drop another mussel into the anemone's maw. "Or for little children to feed him."

Two sunflower sea stars rest in a China Poot Bay tide pool.

SNAILS GET SHELTER AFTER HURRICANE (Central Florida Shell News, November)

Armed with a machete and a letter of passage from the U.S. Fish and Wildlife Service, the soft-spoken zoologist hacked a path through fallen mangroves and talked his way past roadblocks days after Hurricane Andrew to rescue the endangered Stock Island tree snail from certain extinction. "It's not the type of thing we usually do," admitted one of Emmel's comrades, research scientist Peter Eliazar.

The snails are thriving in Emmel's University of Florida laboratory and have laid 45 eggs, the first of new generations that eventually will be returned to nature. A federally protected endangered species, the Stock Island tree snail was close to extinction even before the August 24 disaster.

"A species that's reduced to the last small nucleus clearly cannot survive a natural disaster," said Emmel. "Fast intervention is very important." Emmel and his colleagues had been studying the snail, he said, so "we know where they were and how many were left." They launched their rescue operation just days after Andrew, stopping only long enough to pick up a portable telephone and reaching the home of a colleague minutes before the 11 p.m. curfew. The colleague had arranged a charter boat and the experts were up at first light.

Emmel talked his way past two National Park Service rangers onto Elliott Key in Biscayne Bay to find total devastation. "To think of all the years of work we'd put in there and then to have to start worrying whether they survived at all," said Eliazar.

Back on the mainland, the scientists fought their way through congested roads with no working traffic signals, finally arriving at a wildlife attraction, Monkey Jungle, where some snails had survived. For two hours, they filled every container they had with 463 Stock Island tree snails, 170 Florida Keys tree snails and 94 Florida tree snails. Some of the others has already been baked to death by the sun, their normal cover of leaves and branches blown away by Andrew. The snails that survived now have a "better chance", it was noted.

KING PHILLIP CAME OVER FOR GOOD SPAGHETTI by Alan Gettleman (Central Florida Shell News, September)

Before you think I have completely lost my mind, the title, "King Phillip Came Over For Good Spaghetti", is a mnemonic (knee-mon-ick). A mnemonic is a memory jogger. The best known mnemonic acronym is probably TGIF, standing of course for Thank Goodness Its Friday. The mnemonic will allow you to remember how taxa (units of classification, plural of taxon) are ordered in zoology. Mollusks are arranged based on their evolutionary relationship, called the "natural system".

To remember the phylogenetic relationships of taxa (that is, how mollusks are arranged scientifically), the sequence is Kingdom, Phylum, Class, Order, Family, Genus, and Species. The mnemonic letters "KPCOFGS" can easily be remembered as: KING PHILLIP CAME OVER FOR GOOD SPAGHETTI.

KING (K) is for Kingdom - either Animal, Vegetable, or Mineral

PHILLIP (P) is for Phylum - in our case, Mollusca. Other well-known phyla (the plural form) are: Arthropoda (horseshoe crabs, spiders, insects, crustaceans), Echinodermata (sea urchins, sand dollars, sea stars), Coelenterata (jellyfish, sea anemones, corals), Porifera (sponges).

CAME (C) is for Class. Molluscan classes are Gastropoda (univalves) [stomach foot], Scaphopoda (tusk shells) [boat foot], Bivalvia, or Pelecypoda (bivalves), [hatchet foot], Cephalopoda (octopus, squid, argonaut, nautilus) [head foot], Monoplacophora (monoplacophorans) [multiple pairs of organs], Polyplacophora (chitons) [many plates, usually 8], Aplacophora (wormlike mollusks) [no plates].

OVER (O) is for Order. For the Gastropoda, examples are the Arcaheogastropoda (oldest) [Pleurotomariidae, Haliotidae, Trochidae); Mesogastropoda (middle) [Littorinidae, Strombidae, Cypraeidae]; Neogastropoda (new) [Buccinidae, Volutidae, Mitridae, Conidae]. This is why Pleurotomariidae is often listed prior to Conidae in books, not because they are "rarer", but because they are the "older" and more primitive of the gastropods.

FOR (F) is for Family (similar genera grouped together). Families of animals (Canidae [dogs], Camelidae [camels], Conidae [cones]) all have the idae ending.

GOOD (G) is for Genus (similar species grouped together). Some families (and this can be quite a debatable point) are considered by some to have only one genus (Cypraea, Conus), while others (Volutidae, examples are Amoria, Voluta, Scaphella, etc.) normally are listed as having several or many genera (plural).

SPAGHETTI (S) is for species, the basic unit of classification. As with beauty, the concept of species is "in the eye of the beholder". A recent article by Burgess and Sage in the October, 1992 issue of Hawaiian Shell News discusses the species-level taxa of Cypraeidae named since Burgess' 1985 book Cowries was published. Out of approximately 30 species and subspecies introduced since 1985, they recognize only one, Cypraea barbieri, as being significantly different in shell characters to possibly be a valid species. The rest appear to these authors to be merely variations (otherwise called populations or races) that do not merit any higher recognition. Others (obviously the describers of these new taxa) seem to have an unfulfilled need (perhaps now a "filled need") to "legitimize" variation within a species by creating new species and subspecies names. This debate over just what is a species cannot easily be settled, and so we probably will continue to have "new species" described with unnecessary regularity. In the Conidae alone, there have been in excess of 250 new species and subspecies names proposed since the publication of the Walls book in 1978. I have no doubt that some of these names are valid species, but it is equally certain that when such a "shotgun technique" is used, there are more "misses than hits." It will remain for future scientists to unravel this species tangle.

As with any man-made classification of nature, these divisions do not always cover all the "natural" groupings. There are other variations: superfamilies, subgenera, subspecies, etc.

Remember, only genus and species-level names (genus, subgenus, species, and subspecies) are to be written in a different type style. Italics are used when available, usually in scientific literature, but if italics are not available, then it is customary to underline these scientific names. Family names, such as Conidae, are never underlined. Also, genus names are capitalized; species names are written in lower case, for example, Scaphella junonia).

So when you forget which unit of classification (from higher to lower) follows which, you have only to remember our mnemonic:

King Phillip Came Over For Good Spaghetti!!

(Those of you who may have seen this article in other club publications will see that this typist has used considerable "editorial license," especially under the "Spaghetti (species)" paragraph. The article, without these addenda, is well worth remembering. Something that seems at first glance so unimportant, can actually be an important memory aid. I can remember (indeed, it's impossible now to forget it) one mnemonic from my early grammar school days - George Eats Old Gray Rats And Paints Houses Yellow - GEOGRAPHY! Why this device was chosen never was clear to me, but it has worked! I suppose it's similar to the multiplication tables and long division, once you learn them, they are never forgotten! So keep Alan Gettleman's lesson in mind, and never forget the GEOGRAPHY mnemonic.)

ws

The Paleontological Research Institution - History and Programs

The Paleontological Research Institution (PRI) was founded in 1932 by Gilbert Dennison Harris (1864-1952), a professor of geology at Cornell University from 1894 to 1934, to house his collections and to serve as a base for publishing his two monographic series, Bulletins of American Paleontology (begun in 1895) and Palaeontographica Americana (begun in 1916). Dr. Harris was succeeded as PRI Director in 1951 by his student Dr. Katherine Van Winkle Palmer, a prominent malacologist, who greatly enhanced the reputation of the institution and published nearly 70 papers on fossil mollusks. She was followed by Dr. Peter Hoover, who continued the work of his predecessors until he stepped down in 1991. Dr. Warren D. Allmon, also a malacologist, took the post as Director earlier in 1992.

Today, PRI houses one of the largest collections of invertebrate fossils in North America, and perhaps the largest collection of Cenozoic Mollusca from the western hemisphere, and continues to produce paleontological publications of the highest scientific and technical quality.

As the Institution enters its sixth decade, it looks ahead to improving and expanding its programs, and to playing an even larger role in American paleontology.

PRI's programs are divided into Publication, Collections, Research, and Education.

Publication - Bulletins of American Paleontology specializes in large systematic works in any field of paleontology, and is today one of only two independent paleontological monograph series in the United States. The Bulletins continue the tradition established by Professor Harris by presenting only the highest quality photographic illustrations. Palaeontographica Americana publishes longer monographic works. Both series are produced in large, or quarto (8½ x 11") format. PRI also publishes a quarterly newsletter for members.

Collections - The PRI type and figured collections are the fifth largest in North America, containing approximately 33, 000 specimens. The non-type specimens are largely uncataloged, but probably number over one million specimens, the majority consisting of Cenozoic mollusks, foraminifera, echinoids and corals from North, Central and South America and the Caribbean. These collections are especially valuable in that they represent many localities now gone or inaccessible. Every year specialists from around the world visit or borrow specimens from PRI.

Research - At PRI, research is carried out mostly in the area of specialization of the collections: Cenozoic mollusks of the western Atlantic region. PRI maintains a large and excellent paleontological research library, specializing in mollusks and foraminifera, and containing many old and rare works.
Since 1982, PRI has been partner with the Natural History Museum in Basel, Switzerland and Tulane University, New Orleans in a landmark study of the Neogene paleontology of the northern Dominican Republic. Researchers from Basel and Tulane coordinate field work and specimen distribution among more than 30 specialists around the world, and their results are published in Bulletins of American Paleontology. As they appear, these results are compiled at PRI into a computer database that can be used to pursue a variety of research topics.

Education - Consistent with its history, location and resources, PRI maintains a strong commitment to education in paleontology at all levels. Locally, it serves the central upstate New York region by providing specimens, giving lectures and advice to primary and secondary schools, and by serving as a resource for undergraduate and graduate students at Cornell University, Ithaca, NY.

Membership in PRI is open to anyone with an interest in paleontology. Members receive the Newsletter and a 20% discount on all publications. Annual membership is $20.00. For information, write Dr. Warren D. Allmon, Director, Paleontological Research Institution, 1259 Trumansburg Road, Ithaca, NY 14850.

MUSSEL BEARDS: A COMING OF AGE

by Dr. J. Herbert Waite

Human imagination has a decided predilection for coveting Nature's inimitable tricks. The silk of spiders, flight of eagles, scorpion's sting, and lion's strength are but a few classic favorites. Until recently, mankind has managed to defuse this envy somewhat by personifying desirable animal traits in ancient mythologies and contemporary comic strips. Recent advances in molecular biology, however, have aroused us to be less vicarious about our Nature-envy. This time, the objective is imitation, not mystical sublimation. Although rarely a hero of popular culture, the common mussel (*Mytilus edulis*) has many enviable skills to offer. One of the more bizarre of these (canopied waterbeds) is illustrated in *The Earthly Paradise* (Prado) by Hieronymous Bosch. The mussel beard or byssus, however, has a more practical side. The byssus mediates strong and durable adhesion to surfaces underwater. This is a technical feat that many entrepreneurs would give their right arm to know. Indeed, biotechnology's flirtation with mussel beards is well under way.

The byssus has already had a previous brush with technology that is worthy of mention. Before the introduction of silkworms to Western civilization, ancient chroniclers praised the sheer luxury of fabrics woven from the byssal threads of fan shells *Pinna nobilis*. Although such fabrics are no longer manufactured, some of them are still on display in museums around the world.

While few would argue that the study of byssus has nothing to offer modern technology, it is pertinent to ask whether such a material *can* actually be imitated? Before attempting to address this, let me describe the byssus.

The byssus is an extracorporeal bundle of threads dove-tailing, inside the mussel, with the byssal retractor muscles and deposited opportunistically onto solid surfaces outside the mussel. Like feathers, silk, wool, and carapace, it is void of any living cells and made of robust natural polymers. By drawing itself up on these tendinous threads, the mussel can control the tension of its attachment. The distal tips of the threads end in flattened adhesive pads called plaques. Each thread is formed by extrusion moulding in a groove along the ventral surface of the foot of the mussel.

This intriguing process can be observed by anyone with a modicum of patience and curiosity. Pluck a mussel off the rocks, remove as much of the old byssus as possible, then place the mussel in a glass bowl of cool sea water and watch. First the valves of the shell open slightly, then the foot extends very gingerly from the gap to begin an exploratory process rather like someone groping about in the dark. The accessibility and texture of nearby surfaces is assessed during this exploration. Once it has found a suitable spot on the glass, the mussel places the tip of its foot firmly onto the glass and becomes motionless. At this time, any bulk water present in the byssal groove of the foot is expelled by cavitation. Viewed through the glass, a milky white substance is exuded from a dimple near the tip of the foot. This will become the plaque. The assembly of the thread takes place in the groove and is complete within one to two minutes. When completed, the foot gracefully disengages itself from the thread and plaque and retreats into the shell or continues making more threads.

Examined more closely, the apparent speed and simplicity of byssus formation belie a staggering complexity of molecular structures and processes. Only a few details of this complexity have so far been wrestled from the mussel.

Each byssal thread is a tethered, insulated cable. The cable cores consist of collagen/elastic protein gradients predominating in collagen at the distal or plaque end and proximally in elastic fiber. The insulation consists of a tough, durable varnish apparently derived from stoichiometric mixtures of polyphenolic protein and catecholoxidase.

Noteworthy features of the polyphenolic protein precursor are its high molecuweight, basic isoelectric point, and an apparent dearth of secondary structure. It is an odd, highly repetitive protein which is particularly rich in 3,4-dihydroxyphenyl-L-alanine (L-dopa) - an amino acid usually associated with the treatment of Parkinson's disease.

Less is known about the catecholoxidase. This enzyme catalyzes the oxidation of peptidyl-dopa to peptidy-dopa-quinone, which mat condense with nucleophiles such as the E-amino groups of lysine to form cross-links. Efforts are under way in our laboratory to sequence the cDNA for this natural thermosetting enzyme. The adhesive plaques of mussel byssus also contain significant levels of polyphenolic protein; however, there is evidence for other dopa-containing proteins as well. Earlier immunohistochemical studies suggesting the polyphenolic protein to be located at the surface between the plaque and the substratum are inconclusive, pending the re-evaluation of plaques with monoclonal antibodies or other discriminating methods for surface analysis.

It is well recognized in manufacturing that polymers are rendered functionaf for a particular application only after proper processing and fabrication. Evidently, this is no less true in Nature. Byssus formation involves two processing strategies that deserve mention. the bulk of the adhesive plaque consists of a microcellular solid rather like cork or polystyrene foam except that the cells are filled with liquid, not gas. The microcellular structure is formed by the phase inversion of a latex with particles presumably containing polyphenolic and related proteins secreted by the phenol gland near the tip of the foot. Although nothing is known about the forces driving the phase inversion, a recent strategy for making microcellular polystyrenes in vitro suggests that shear and surfactant:monomer ratios are critical. Shear forces could be encountered by the latex during its transit through six to nine jets near the tip of the foot. Byssal foams may be cured by the action of catecholoxidase, but current evidence suggests that the enzyme is largely limited to the varnish.

The accessory gland of the foot secretes another latex which coalesces to form the varnish over the entire byssal surface. The function is presumably to protect the load-bearing fibers (collagen and elastic protein) in the core of the thread from microbial and chemical attack. These latex particles or granules (diameter 1 microm) appear to contain a prefabricated interpenetrating but uncured network of polyphenolic protein and catecholoxidase. Perhaps other proteins are also present. Cure occurs during coalescence of the granules following ptoteolytic activation of the catecholoxidase. Preliminary evidence suggests that this enzyme has roles asboth a copolymer and catalyst.

If the mussel is enviable for its byssal adhesion, then what, you might ask, is the particular appeal of its adhesive? It is quite simply that the current generation of synthetic adhesives has performance limits. A common limitation in everydat adhesive use is the presence of moisture. Water forms a fine boundary layer between a glue and its intended bonding surface and thus subverts the bonding process. This subversion is obvious when moisture prevents the adhesion of a bandage to wet skin. It is more insidious when water creeps under paint on automobiles or into seals of booster rockets. Mussels have distinguished themselves by evolving adhesive strategies that counter not only surface moisture, but also the persistent presence of bulk water. The current industrial fabrication of environmentally durable adhesive bonds between, for example, polymers and metal surfaces, is a highly complex process which involves many steps including surface cleaning, the application of surface coupling agents (typically silanes), the removal of excess coupler, application of a carefully mixed adhesive formulation (containing monomer, initiator, cross-linker, catalyst, etc.), and setting. Omission or improper execution of any step can lead to adhesive defects and catastrophic failure. The vulnerability of such a heavy reliance on flawless protocol has spurred a move towards redesign of industrial adhesives.

In the mussel, Nature has anticipated modern needs for advanced adhesives. Peptidyl-dopa is a polymer-pendant functional group that can, in principle, fulfill both surface coupling and cross-linking roles. There is no known synthetic or natural functional group other than peptidyl-dopa found in the mussel that can effectively perform this function. Moreover, it cannot be stressed enough, that successful execution of underwater adhesion by mussels depends on interventions in both chemistry and processing, with the latter referring to specific actions by and within the foot during thread formation.

Industry would do well to take an interest in the byssus. Water-resistant adhesion is certainly one compelling attraction, but there are others. The byssus mediates fouling by mussels which is significant on marine structures in the North Atlantic. A better understanding of byssus formation could lead to the development of antifouling strategies that might lessen our dependence on toxic paint additives like tributyl tin. In addition, the byssus is a scavenger for transition and heavy metals in the marine environment. Its talents in this regard have already been exploited by the US Environmental Protection Agency's "Mussel Watch" program. Perhaps the metal-binding capacity of the polyphenolic protein is responsible for this and can be utilized to monitor environmental contamination independent of the byssus. Lastly, the byssus represents a robust yet biodegradable natural fiber with a functional lifetime of two to three years. Curiously, only the varnish exhibits a resistance to chemical and enzymatic degradation while the load-bearing fibrils in the core (such as collagen) are readily degraded once exposed. As such, the byssus serves as an intriguing model for the future design of degradable consumer materials.

The recent isolation, characterization and patenting of the polyphenolic protein of M. edulis have caused little flurries of commercial speculation which revolve around the expectation that this protein will be a panacea for some of the adhesive woes of the world. As a consequence, biotechnology has been preoccupied with two main priorities: the cost-effective production of bulk quantities of polyphenolic protein and/or analogues, and the development of effective applications. Although the mussel-derived protein is not likely to be cost-effective in the long run, recent improvements in protein purification have increased yield 50-fold and enhanced purity. Despite the variety in sequence and composition, the polyphenolic proteins of some 15 different species of marine mussels have been successfully isoltade by these improvements.

The curious case of the mussel's beard suggests that Nature may have an uncanny prescience about the development of technology. Perhaps this is because Nature and technology have been evolving along convergent, albeit largely independent lines. In the realm of adhesives, for example, it is tempting to speculate that Nature (as represented by mussels and their kind) is anticipating the formulation of superior industrial adhesives. These anticipations, however, are revealed only by scientific "observation, deduction and the application of relevant knowledge" (to parapharse Sherlock Holmes).Is it possible that future industry will recognize this prescience and dar its inspirations more directly from the inventions of Nature? This cannot be reasonably expected without greater collaboration between biologists and engineers. Each discipline has much to contribute, and it can be seen that the principles of adhesive design and processing in the mussel appear sublimely well-conceived and economical when we can comprehend them. We can only hope that our recent findings will contribute to renewed interest in the practical applications that can be learned fron Nature.

(adapted from a 1991 report in Chemistry and Industry and forwarded to us by our friend Dr. Ruth Turner. Would you have believed that there are such complexities to be learned from the common blue mussel, Mytilus edulis?) ws